RISC user

The magazine for users of Acorn RISC computers

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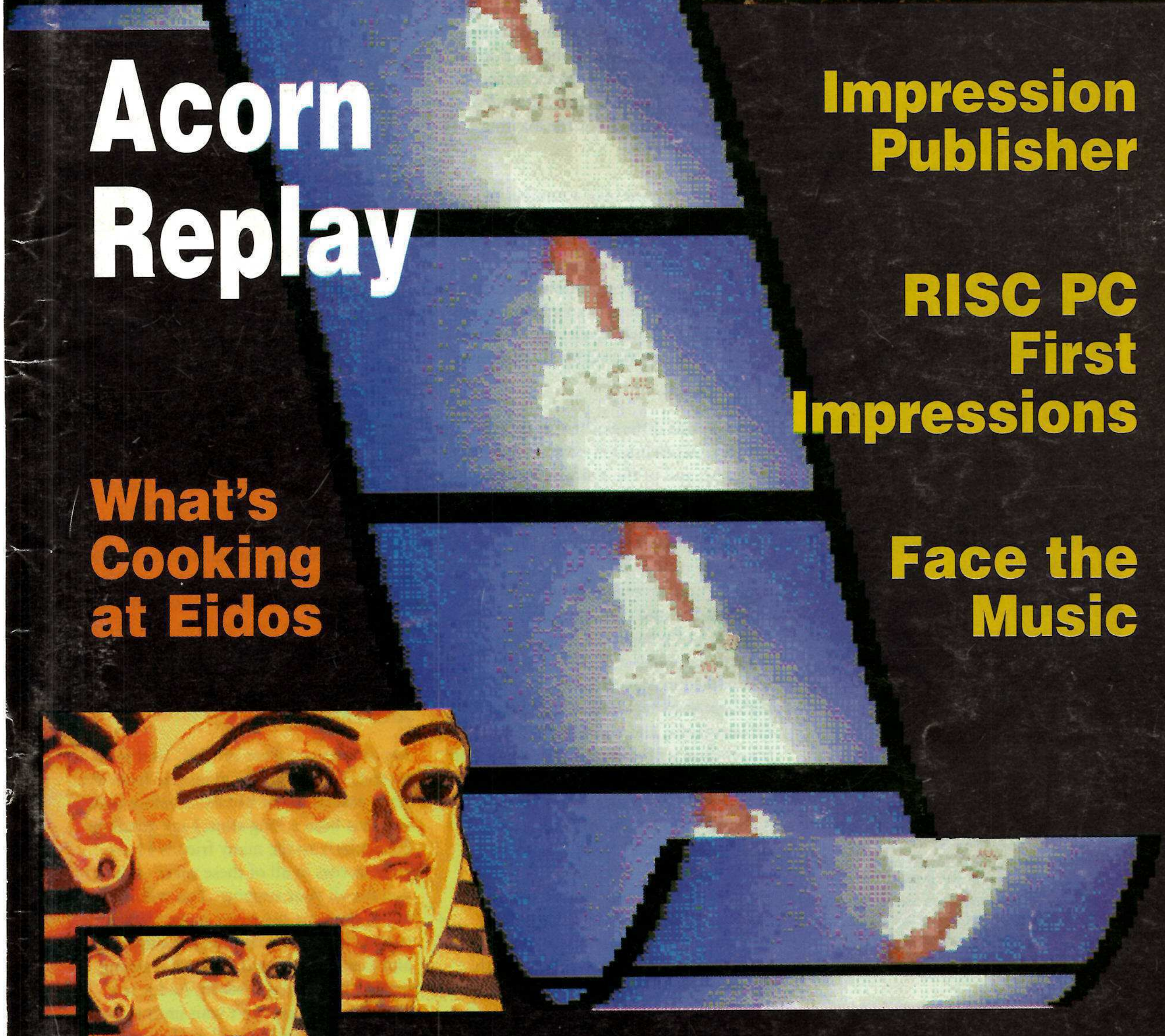

Acorn Replay

Impression Publisher

RISC PC First Impressions

What's Cooking at Eidos

Face the Music

JUNE 1994
VOLUME 7 ISSUE 7

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THE MAGAZINE FOR USERS OF ACORN RISC COMPUTERS

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LOOKING FORWARD

Like all of the magazines, this editorial was written many weeks ahead of when you, the reader, have a chance to see it. For example, I have recently attended Acorn's press launch for the exciting new range of Risc PCs.

Press launches can take a number of formats, some more successful and interesting than others. In the recent past Acorn has gone for relatively straightforward presentations, with a series of corporate speakers addressing a seated audience while relevant slides of facts and figures are slickly flashed onto a screen.

This one was different. It was more in the nature of a celebration of what has been achieved, and of the promise for the future. It would be impossible to describe, and I won't attempt to, apart from the climax of the show. We saw a landscape of Risc PCs and other equipment, in every imaginable combination and configuration, against a backdrop of what seemed like hundreds of stars twinkling in a darkened sky. All was bathed in a warm glow, yet highlighted by a complex laser light extravaganza, and accompanied by resounding synthesized music. By hidden means the entire seated audience was rotated as by an unseen hand within this vision of Acorn's future. And vision is really what it is all about.

UPDATE . . .
Owing to internal reorganisation, the July issue of RISC User magazine will be mailed out during the second week of July.

Acorn has a superb machine in the Risc PC. It is all and more that anyone might have wished (though no doubt some will quibble with that statement). But the main challenge for Acorn has yet to come. I spoke afterwards with Acorn's Managing Director, Sam Wauchope, and while full of praise for all that Acorn's staff have achieved, he was quick to acknowledge the truth of this. In his view no one doubts Acorn's technological capabilities. It has long championed the RISC processor as the way ahead, and is a world leader in innovative low-cost RISC-based products. The real challenge now is whether Acorn has the marketing and business acumen to make the Risc PC a major success.

There is no doubt that many of Acorn's 'friends', those users of all kinds already committed to the Acorn platform, will be queuing up in droves for some time to come to get their own Risc PC. The challenge is whether the Risc PC will capture new users and new markets. Sam is confident of Acorn's capabilities, and I have to say, as one who has sometimes been a doubting Thomas in the past, that I feel more optimistic for Acorn than I can remember for many a year. Wait until more of the hardware and software developers let their imaginations run riot with the Risc PC's capabilities, and I feel quite confident in saying, "You ain't seen nothing yet!" In my mind the Risc PC is a genuine world beater.

AND FAREWELL

My time as co-editor of RISC User is at an end. I was with the magazine from the start, and editor of BEEBUG before that, so it has been a long stint. I say goodbye particularly to the many friends I have come across in all of these years - thank you for all your support. You will, I hope, continue to see my name from time to time in the magazine as a contributor, and I certainly intend to retain a strong interest in all things Acorn. As for my own future, I just can't wait until I can get my own Risc PC, and explore its capabilities to the full. Schicksal!

Mike Williams

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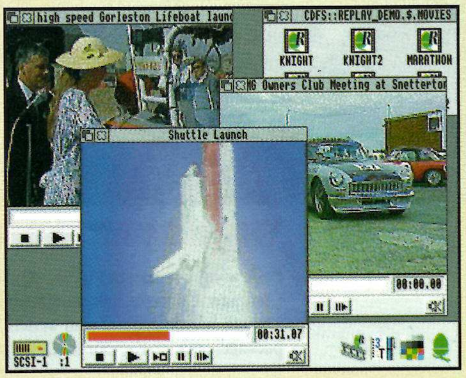

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KNIGHT2
MARATHON
MG Owners Club Meeting at Snetterton
Shuttle Launch
00:00.00
00:31.07
SCSI-1
:1

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Risc PC: First Impressions page 20

News ...

WHERE WAS THE Risc PC?

Many of you may have been just a bit upset that there were no Risc PCs to take home as souvenirs from the Harrogate Show. So were we, especially as Acorn had informed us that there would be systems available for sale. Where were they? According to Acorn, the launch of the Risc PC went phenomenally well - within two days of the launch on April 15th, it had already taken more orders than had been budgeted for the entire first quarter of production. Because of the substantial demand from dealers, developers and international distributors, only a very limited number of systems would thus have been available to sell at the show, and Acorn felt that this situation would have been unfair to the vast majority of potential purchasers.

That's the official line from Acorn. The unofficial and unconfirmable rumour is that Acorn planned to take 600 systems to the show. Unfortunately, they didn't have 600 ARM6 processor cards to put inside them!

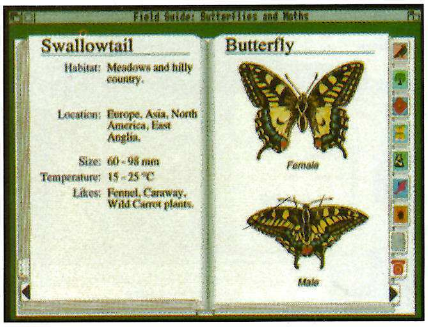
However, Acorn are now believed to be shipping about 1000 machines per week, and expect to vamp this up shortly.

A WEALTH OF EDUCATIONAL RESOURCES

New from Semerc is the *Semerc Treasure Chest*, an educational CD-ROM aimed at Key Stage 1, 2 and 3 pupils. Designed to make learning fun, the *Semerc Treasure Chest* includes a wide range of pictures, symbols, sound samples and speech files. Each of the 2,500 pictures is grouped by subject and has its own text and sound file so that pupils can read as well as listen to the names. The CD also contains 200 useful sound effects and 1,000 Rebus symbols. Priced at £69 ex VAT, the *Semerc Treasure Chest* is available from Northwest Semerc, tel. 061 627 4469.

THE 1994 ARTWORKS COMPETITION

Following the success of its *ArtWorks* clipart competition last year, Computer Concepts has announced a new competition for 1994. Open to anyone who has produced artwork on an Acorn-based graphics or drawing package, such as *ArtWorks*, *Draw*, or *Vector* (Sprites and images imported from foreign platforms are not acceptable), the first prize is nothing less than a new Acorn Risc PC. For more information contact Computer Concepts at Gaddesden Place, Hemel Hempstead, Herts HP2 6EX, tel. 0442 63933, fax 0442 231632.



Swallowtail

Butterfly

Habitat: Meadows and hilly country.

Location: Europe, Asia, North America, East Anglia.

Size: 60 - 98 mm

Temperature: 15 - 25 °C

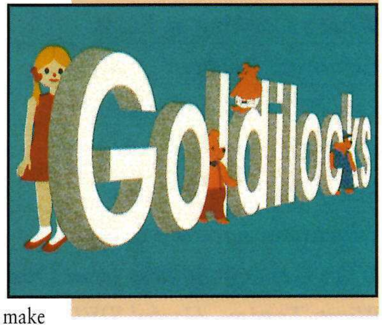
Likes: Fennel, Caraway, Wild Carrot plants.

USBORNE EXPLORING NATURE ON CD-ROM

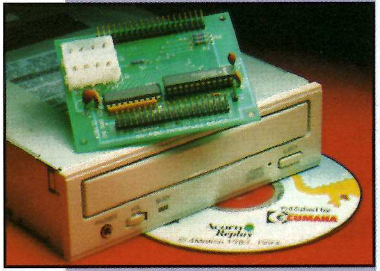
The *Usborne Exploring Nature* CD-ROM is the latest addition to Cumana's ever-growing family of educational CD-ROMs. Suitable for pupils of all ages, the package is designed to encourage children to explore the exciting world in which we live. *Usborne Exploring Nature* costs £125.00 ex. VAT, and is available from Cumana Ltd, Pines Trading Estate, Broad Street, Guildford GU3 3BH, tel. 0483 503121, fax 0483 451371.

WHO'S BEEN EATING MY PORRIDGE?

"Who's been eating my porridge?" is just one of the many questions that children are encouraged to answer when they work their way through the popular story, *Goldilocks*, now available from Cumana in a new CD-ROM format. Suitable for Key Stages 1 and 2, as well as special needs pupils, *Goldilocks* comes complete with a wide range of activity sheets and overlays for use with an overlay keyboard. Further information on *Goldilocks*, which costs £39.93 ex. VAT, can be obtained from Cumana Ltd, tel. 0483 503121.



CD-ROM UPGRADE FOR Risc PC



Cumana has launched a new internal CD-ROM drive kit for the Risc PC. Called the *300i*, the kit comprises a double-speed, PhotoCD compatible Panasonic CD-ROM drive and a small interface board which plugs directly into the computer's IDE interface on the motherboard. Built to comply with Acorn's new specifications and designed to complement the style of the Risc PC, the *300i* CD-ROM drive also allows audio CDs to be played as standard. The drive kit is priced at £249 ex. VAT. Further information can be obtained from Cumana Ltd, tel. 0483 503121.

IMAGE PROCESSING ON THE Risc PC

The launch of the Risc PC was accompanied by the announcement of no less than five graphics applications. The Risc PC's 24-bit true colour capability makes it an ideal system for professional image processing and enhancement. The five applications listed below will all work on existing Archimedes systems, but have been designed to take advantage of the superb facilities offered by the Risc PC, such as 16.7 million colours for image display and creation.

From Clares - ProArtisan24 and Composition

ProArtisan24 is, as its name suggests, a 24-bit version of Clares' popular *ProArtisan2* painting package. The tools provided are said to be extremely realistic, with the brushes able to mimic natural media such as charcoal, pastels and felt tips. *ProArtisan24* has the ability to load and manipulate Kodak PhotoCD images in 24-bit colour. It also provides a clone spray for photo-retouching, and a wide range of powerful image processing filters.

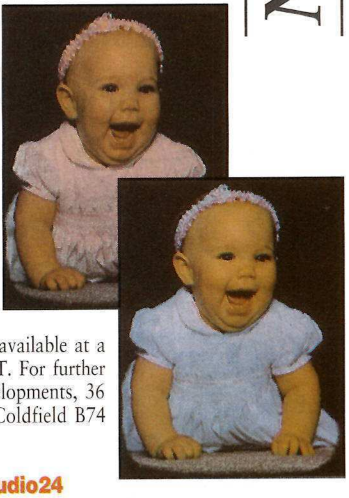
Clares' second package, *Composition*, is an image composition program which allows the user to combine a number of 24-bit pixel based images (each one treated as an individual object) from a variety of sources such as Kodak PhotoCD and colour scans. *Composition* provides a range of special effects such as motion blur, mist and rain.

ProArtisan24 costs £169.95 ex. VAT. A price is not yet available for *Composition*. Further information can be obtained from Clares at 98 Middlewich Road, Northwich, Cheshire, CW9 7DA, tel. 0606 48511, fax 0606 48512.

From Digital Arts - DA's Picture

DA's Picture is a art and image retouching package from Digital Arts in Germany. Digital Arts is internationally known for its high quality products which cover the complete publishing spectrum, from page layout to image processing, on a diversity of platforms. *DA's Picture* is its first product for the Acorn market and offers sophisticated image manipulation tools never before seen on the RISC OS platform. *DA's Picture* is available at a special launch price of £99 ex. VAT. For further details contact CGS ComputerBild, 231 Northborough Road, Norbury, London SW16 4TU, tel. 081 679 7307, fax 081 764 7898.

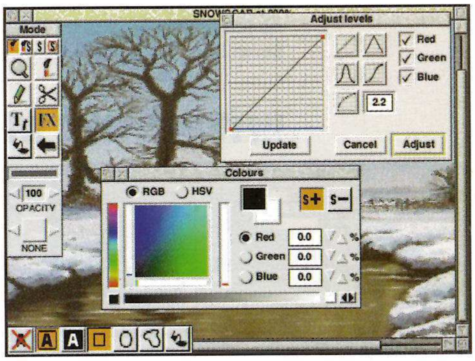
From Oregan - PhotoTouch



Oregan claims that its *PhotoTouch* application is a painting, professional prepress, and image processing system. Working with photographic quality images, you can take any photo and turn it into your own creation, adding special effects and realistically retouching the image until it suits the task for which it is required. A few of the tools provided by *PhotoTouch* include transparent, translucent and opaque painting tools, morphing, and importing facilities for over 40 foreign file formats. *PhotoTouch* is currently available at a special launch price of £68.04 ex. VAT. For further details contact Oregan Software Developments, 36 Grosvenor Avenue, Streetly, Sutton Coldfield B74 3PE, tel. 021 353 6044.

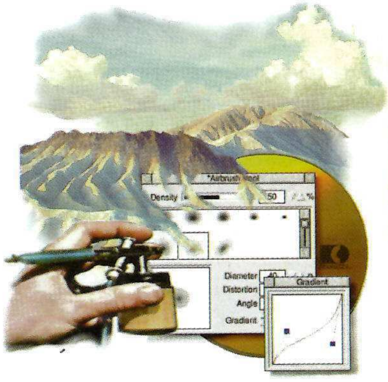
From Pineapple Software - Studio24

Pineapple Software's *Studio24* uses full 24-bit processing for all painting and processing operations, and powerful error spreading techniques for displaying the results in standard 8-bit screen modes. Pineapple claims that *Studio24* has many unique features, including powerful stencilling operations, definable textures and many processing and filtering operations. *Studio24* is priced at £125 ex. VAT and is available from Pineapple Software at 39 Brownlea Gardens, Seven Kings, Ilford, Essex IG3 9NL, tel. 081 599 1476, fax 081 598 2343.



From Spacetech - PhotoDesk

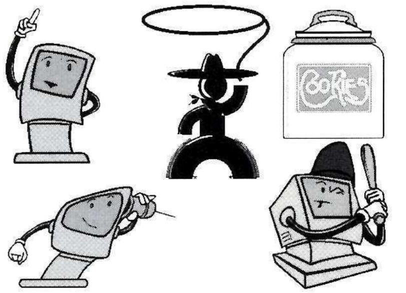
According to Spacetech, *PhotoDesk* is a fully featured art and photo-retouching application designed to give Acorn users access to the most up-to-date techniques used in the computer graphics industry. All the operations in *PhotoDesk* are carried out at 'studio quality' in virtual memory. Every one of *PhotoDesk*'s painting tools is capable of applying every effect. For example, you can spray-on 'image processing' with the airbrush tool, and better still, you can 'spray' it back off again. *PhotoDesk* costs £169.95 ex. VAT and is available from Spacetech, 21 West Wools, Portland, Dorset DT5 2EA, tel. 0305 822753, fax 0305 860483.



ACORN CONTINUES WORLDWIDE EXPANSION PROGRAMME

Acorn Computers has appointed Johannesburg-based Oak Tree Technologies as its sole distributor in South Africa. The appointment is part of Acorn's strategy to broaden its worldwide presence and open up international markets. For further information contact Oak Tree's UK representative, Lindis International, tel. 098685 476.

ClickArt CLIPART FOR ACORN USERS

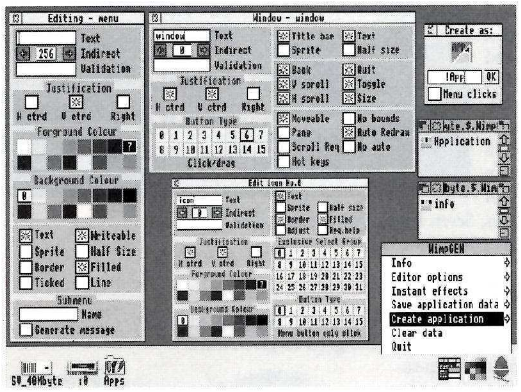


Matt Black has announced the launch of a new clipart pack with the famous *ClickArt* brand name. The *ClickArt Education Image Pack* provides a complete library of 2,000 full-colour Draw files. *ClickArt* is the leading clipart brand for the PC and Apple Mac. The *ClickArt Education Image Pack* costs £65 ex. VAT, and is available from Matt Black, tel. 0733 315439.

PROCAD EXTENDED IN 150 WAYS

Minerva Software has released a substantially extended version of its professional CAD package, *ProCAD*. Version 1.03 of the software sports over 150 new features, including the ability to import all types of Ordinance Survey Digital Data. Further information can be obtained from Minerva Software, Baring Crescent, Exeter, Devon EX1 1TL, tel. 0392 437756, fax 0392 421762.

INTERACTIVE WIMP GENERATION



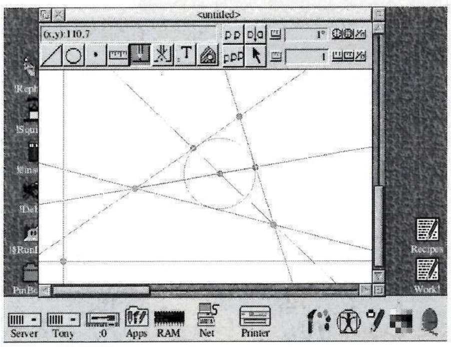
WimpGEN, from Silicon Vision, is a RISC OS program interface generator that eases the task of designing and implementing Wimp-based programs. Silicon Vision claims that by using *WimpGEN*'s powerful editing facilities, the programmer can interactively design and create complex windows, dialogue boxes and menu structures with ease, and let *WimpGEN* take care of the generation of the main program shell for the designed interface. *WimpGEN* costs £85.06 ex. VAT and is available from Silicon Vision at Signal House, Lyon Road, Harrow, Middlesex HA1 2AG, tel. 081 422 3556, fax 081 248 3589.

EXPANDING THE OPTIONS FOR CD-ROM

Computer Concepts has announced the arrival of a baby brother for its quad-speed 604X CD-ROM drive. The *Pioneer DRM 602X* is a double-speed six-disc drive which offers multi-session PhotoCD compatibility and audio output to headphones and RCA connectors. The *Pioneer DRM 602X* costs £509.00 ex. VAT and carriage, and is available from Computer Concepts, tel. 0442 63933.

Apollonius PDT - THE GREAT GEOMETER

Oak Solutions has announced a new parametric CAD package, *Apollonius PDT*, for the Risc PC and existing Archimedes range. *Apollonius PDT* builds on Oak Solutions' existing Parametric Design Tool package, and is now fully RISC OS compliant. *Apollonius PDT* costs £150 ex. VAT, and upgrades are available. Further details can be obtained from Oak Solutions, tel. 0532 326992.



X Windows FOR THE Risc PC

Gnome Computers has launched its X Windows server software for the Risc PC, and claims that the combination of its X server software and the power and flexibility of the Risc PC gives a truly professional and cost-effective X terminal solution. The X server allows users to connect their Risc PC computer to a network of workstations running the industry standard X Window System. For further information contact Dr Chris Stenton at Gnome Computers Ltd, tel. 0480 406164.

CD FRANÇAIS - UNE BON IDÉE

Oak Solutions has released *CD Français*, a CD-ROM application with over 50 interactive French activities based on the popular Tricolore course. All the activities have been designed to support any French course, not just Tricolore. *CD Français* costs £95 ex. VAT, including teachers notes and site licence, and is available from Oak Solutions at Dial House, 12 Chapel Street, Halton, Leeds LS15 7RN, tel. 0532 326992, fax 0532 326993.

TURN THE TABLETS ON YOUR MOUSE

Two professional graphics tablets have just been launched for the Archimedes and Risc PC. Designed by Wacom, both tablets use a cordless, batteryless, pressure-sensitive stylus, and may also be used with a cordless four-button puck for accurate tracing of points and lines. The A5 tablet and stylus costs £399 ex. VAT, and the A4+ version with stylus and puck £549 ex. VAT. An *ArtWorks* Pressure Tool is also available for £29 ex. VAT. For more details contact Vaughan Allanson, tel. 0638 578597.

NEW PROGRAMMING TOOLS FROM ACORN

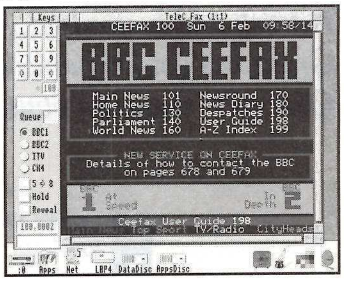
Hidden in the specification for the Risc PC are details of a new Acorn C compiler, Release 5. This will be on sale later in the year, together with a set of Style-Guide compatible objects such as windows and dialogue boxes, a new Assembler and (at long last) a C++ compiler. Acorn C Release 5 has many small improvements over its predecessor, as a result of which Acorn claims that compiled programs are smaller and run 10% faster than with Release 4. The allocation of variables to registers is also significantly improved.

IT'S NOT A WORDPROCESSOR, IT'S A GRID PROCESSOR

4Mation's *GridPro* is a sophisticated utility which allows you to create a wide variety of different grids and patterns very easily. Objects created in *GridPro* can be printed as is, or used as components of documents created in other packages. *GridPro* costs £37.50 ex. VAT and can be obtained from 4Mation, 14 Castle Park Road, Barnstaple, Devon EX32 8PA, tel. 0271 25353, fax 0271 22974.

NEW TELETEXT EXPANSION CARD FROM DESIGN IT

Design IT's debut product for the Acorn market is *Teleview Hardware*, the first teletext expansion card designed specifically for Acorn 32-bit computers. Two variants of the card are available. The first will receive teletext only and costs £145 ex. VAT. The second card, at £159 ex. VAT, also provides composite video and audio connections. Both cards are available from Design IT, tel. 0902 894775.



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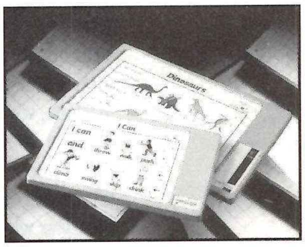
NEW SERVICE ON CEEFAX
Details of how to contact the BBC
on pages 678 and 679

BBC 1 At Speed In Depth BBC 2

Ceefax User Guide 198
Main News Top Sport TV/Radio CityHeads

NEW CONCEPT KEYBOARDS FOR JUST £99

"Out with the old and in with the new" is the principle behind The Concept Keyboard Company's latest part-exchange deal in which schools can trade-in their old blue Concept Keyboard and purchase a brand new Universal 2010 Keyboard for just £99 ex. VAT. Further details can be obtained from The Concept Keyboard Company, tel. 0962 843322.



II SCSI OR NOT II SCSI

Cumana is set to launch a new high performance 32-bit Small Computer System Interface (SCSI) card. The card, which is currently under development, will allow Risc PC users to communicate at maximum speed with SCSI II peripherals such as scanners and printers. Information on prices and specifications can be obtained from Cumana Ltd, tel. 0483 503121.

The NEW Risc PC is available NOW!

Beebug has SPECIAL OFFERS *plus* generous trade-in prices

Risc PC PRICES (all ex VAT)

- ★ 2Mb/210Hd £1249
- ★ 5Mb/210Hd £1399
- ★ 9Mb/420Hd £1699

All systems are priced with a 14" SVGA monitor (Reduce the price by £230 if you already have a suitable monitor)
For a 17" SVGA monitor please add £400.

BEEBUG SPECIAL OFFERS

- ★ **PC Card for just £25**

*or any **FOUR** of the following free:*

- ★ **Ovation**
- ★ **Artisan 2**
- ★ **PipeDream 3**
- ★ **Schema**
- ★ **Chess**
- ★ **10 HD (2Mb) discs**

TRADE-IN YOUR OLD SYSTEM
Please phone in to ask for details of prices.

FINANCE SCHEMES FOR THE Risc PC

0% scheme:
10% deposit remainder over 6 months
Special offers do not apply under this scheme

0% APR Finance Scheme:
(Payments below inc VAT)

	RRP	Deposit	6mths@
2/210	£1468	148	220.00
5/210	£1644	165	246.50
9/420	£1997	200	299.50

23.9% APR scheme:
10% deposit remainder over 12, 24 or 36 months
Phone for details.
Special offers still apply under this scheme
Insured UK Courier delivery is £8 plus VAT
Send for brochure

23.9% APR Finance Scheme:
(Payments below inc VAT)

	RRP	Deposit	12mths	24mths	36mths
2/210	£1468	147	128.68	73.76	55.97
5/210	£1644	164	144.17	82.64	62.71
9/420	£1997	200	175.05	100.34	76.14

Plus £10 admin fee to be added to the deposit.
A protected payments plan is included in the prices.
The scheme is available without the payments plan.

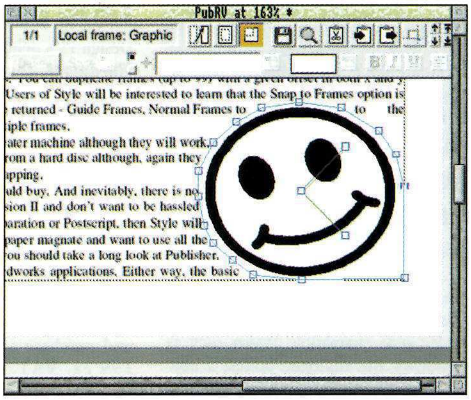
Impression Publisher

Publish and be praised. At long last Richard Grant has got his hands on Computer Concepts' magnum opus, and is soon won over.

Hopefully 1994 is going to be a momentous year for Acorn and its software suppliers. A new computer always stimulates the release of new software. Computer Concepts is no exception to this axiom, releasing several upgrades for its range of products to take advantage of new facilities in the new machine, whilst at the same time retaining compatibility with the older machines. I reviewed *Impression Style* in RISC User 7:3, when I raved about its new facilities and this spring saw the release of its brother, *Impression Publisher* which I am looking at here.

But first, a quick recap on the relative positioning of these two products. The old Impression II we knew and loved is now superseded by a pair of parallel products, Style and Publisher. Style was always intended to be an upgrade for Impression II, but in its metamorphosis it has become a sophisticated word processor with many of the facilities with which users of word processing programs on the PC platform are familiar, such as an online Thesaurus and Dictionary.

Publisher, on the other hand, takes a slightly different approach by extending Style's existing facilities with additional features which are probably better described as being in the realms of desktop publishing, rather than simply word processing. To this end are included colour separation and provision for the output of output of Postscript files, irregular frame outlines, multiple rulers associated with paragraphs and extended mail merge, and more.



Users of Style will be interested to learn that the Snap to Frames option is
returned - Guide Frames, Normal Frames to to the
iple frames.
ater machine although they will work,
rom a hard disc although, again they
apping.
uld buy. And inevitably, there is no
sion II and don't want to be hassled
aration or Postscript, then Style will
paper magnate and want to use all the
ou should take a long look at Publisher.
dworks applications. Either way, the basic

Figure 1.
A rather contrived irregular frame showing text flow

The copy of Publisher that I was supplied with was an early pre-release version, with several known bugs and faults. However, Computer Concepts is a company that is known for fully ironing out problems before release, but because of these problems I was able to fully test only some of the new features. And in the best traditions of all reviews, this one is being written in the product being reviewed.

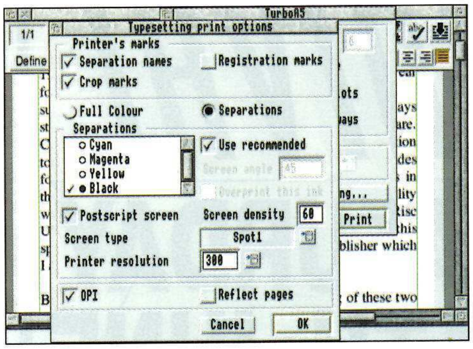
MAKING IT IRREGULAR

The first major improvement that all DTP workers will enjoy will be the ability to create irregular outlines for graphics frames - something that was long overdue - through a new sub-item in the *Frame* menu called *Make Irregular*. Clicking on this changes the familiar green frame outline to a blue one which at first glance looks identical in all other respects. However, you can pick up a frame handle and move it as in Draw, with the frame outline rubber-banding to the new position as you move. Alternatively, and more usefully, you can move the pointer over the frame outline, when it changes into a little square, and pick up the outline itself, whereupon a new handle will be created automatically. By strategically placing a few extra handles, a good approximation to a curve can be made, with any repelled text outside reformatting instantly to the new shape (see figure 1). Magic!

To remove an additional handle, you pick it up and drop it over an existing handle and it disappears.

Computer Concepts has intentionally made this interface similar to ArtWorks, so those who already use this should have no difficulty in adapting. Nevertheless, despite the undoubted usefulness of irregular frames of this type, generating a smooth curve can be time consuming; perhaps we can hope for the ability to use Bezier curves in frames in a future version. Additionally, further options allow you to show the bounding box of the irregular shape (see below) and, if you want, to reconvert the irregular frame back to a regular one when a warning box tells you that the irregular information will be lost.

The graphics tool which I described in my review of Style is also present, allowing rotation, positioning and sizing of the graphic in real time. An additional feature, which wasn't implemented on the version I received, will allow frames to be selected by dragging and/or selecting all frames on a page. Computer Concepts claims that reformatting of text around frames has been speeded up by a factor of over thirty, but I wasn't able to verify this.



Printer's marks
☑ Separation names
☐ Registration marks
☑ Crop marks
○ Full Colour
● Separations
Separations
○ Cyan
○ Magenta
○ Yellow
✓ ● Black
☑ Use recommended
Screen angle 45
☐ Overprint this ink
☑ Postscript screen
Screen density 60
Screen type Spot1
Printer resolution 300
☑ OPI
☐ Reflect pages

Figure 2.
Setting printer output parameters

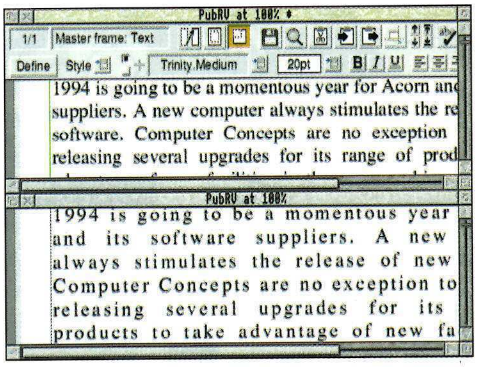
Two modes are available for manipulating irregular frames. *Irregular Edit* mode allows editing of the outline proper, inserting and deleting points as described above. *Non-Irregular Edit* mode shows the bounding box and allows resizing and scaling of the entire box just like a normal frame. With the advent of the irregular frame, the meaning of *Repel Text* when referring to the four edges is lost, and this parameter is now labelled *Offset* when referring to such a frame.

COLOUR ME CMYK

Moving onto colours and graphics, there is now an option for colour separation on-screen, with separate sub-options for full colour, cyan, magenta, yellow or key (the black element of colour printing). These will also be available for outputting through the *Print* menu. Interestingly, these work separately on each document on-screen, so if you have two such documents, you can set one separation colour for one, and a different one for the other. And of course, both Style and Publisher support the full 24/32 bit new Acorn image format, just like ArtWorks 1.5. For the more advanced worker, perhaps outputting for imagesetting, there are editing boxes for altering graphic typesetting halftones for PostScript output with or without frame co-ordinates, colour mapping with division into upper, midtone and lower bands, each fully specifiable for RGB, HSV and CYMK, and an optional 10% clip (figure 2). I was unable to explore these complex facilities fully in the time available, but they will hopefully be covered in detail in future articles.

A colour map dialogue box now allows colours to be applied to sprites (except deep sprites), Draw files and ArtWorks files. This will allow the user to apply and edit graphics colours from within Publisher to give rise to some really weird and wacky effects.

On the text side, there will be an option, although it wasn't yet finished on my version, for loading and saving text in RTF, *Rich Text Format*. This new term may be unfamiliar to Acorn users, but it is the PC world's attempt to harmonise text file formats between different word processing and DTP software providers. Basically, if you can read or write a disc for your alternative chosen platform, any text file saved in RTF can be loaded into another application with most of the essential formatting information intact. I can see many users with PCs at work and Acorns at home finding this very useful.



1994 is going to be a momentous year for Acorn and
suppliers. A new computer always stimulates the re
software. Computer Concepts are no exception
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1994 is going to be a momentous year
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Computer Concepts are no exception to
releasing several upgrades for its
products to take advantage of new fa

Figure 3.
Upper frame shows normal text, lower frame shows tracking set to 150ems.

THE STYLE EDITOR

The Style Editor is broadly the same as in Impression Style. Tracking has now been added, both for a selected region and from within a style. Most users will now be familiar with kerning, both in its original rather primitive form in Impression II, where two characters could be individually kerned, and in RISC OS 3 where an automatic kerning option is available

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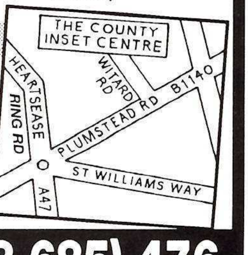

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for applications which provide support. Tracking is a variation on this, and is used to space or compress characters within two given points. For simple tracking, a menu which toggles automatically between kerning and tracking depending on whether or not a region is selected, allows you to specify in ems, the amount of movement to be used. Globally, tracking can be set within a Style and applied in the usual way (see figure 3).

Tracking is probably of most use in a banner or headline where the individual letters of a word can be padded out to fill a given column width. A very useful improvement is an overwrite option, raised via a new dialogue box when loading Styles into the Style Editor. I was always annoyed when merging Styles to find, perhaps, a long, complex Style that has taken some time to assemble completely overwritten when adding another Style from another document. Previously, it was necessary to think in advance and rename a Style before loading. This new option gives you the choice of whether to overwrite or rename the original Styles.

A useful little touch is an option in *Utilities* to list all the fonts in a document, this being automatically assembled into a Publisher sub-document. With the number of fonts available for Acorn users reaching astronomical heights, and font management utilities becoming an essential extra, the ability to see what fonts are in a document in order to assemble the correct fonts into your Fonts directory is a very useful adjunct. I hope to cover the subject of font handling in a future article.

Another useful addition is automatic ruler indenting. Using this enables you to indent the current ruler by a set amount, or to the next tab so that subsections don't need the creation of a new ruler. Another new option allows the use of Tab (by using Shift-Tab) when within a leadering Style, to indent to a Tab without leadering (yes, read that again).

In an earlier article, I bemoaned the lack of ability to manipulate or edit the underline parameters. Well, now you can for both the thickness and position, and also for sub and superscript, by specifying the offset from default and size or thickness as appropriate. Other useful improvements include an option to specify the thickness and colour of a frame border, although this wasn't working in the version supplied to me.

OTHER IMPROVEMENTS

Publisher also supplies many other, perhaps lesser, but equally useful improvements. You can duplicate frames (up to 99) with a given offset in both x and y axes. Computer Concepts suggests that this could be used for creating grids and forms, though at this stage I would have thought that using a Style within Publisher or alternatively, using Tablemate, might be more intuitive. Users of Style will be interested to learn that the *Snap to Frames* option is extended to specify which types of frames can be snapped to. Guide Frames have returned - Guide Frames, and Normal Frames to the text grid, The *Snap to Grid* option has also returned, but this time, cutting across multiple frames. Snap to Grid now actually shows a grid of dots on screen, rather in the manner of Draw.

Finally, bear in mind that both Style and Publisher are happiest residing in a 2Mb or greater machine, although they will work, with difficulty, in a 1Mb one. As always with complex software they benefit from a hard disc, although they can be used, albeit much more slowly, from floppies if you're prepared to do a lot of disc swapping. With memory prices slowly creeping upwards, this could be the ideal opportunity to expand your machine's capability.

PRODUCT INFO

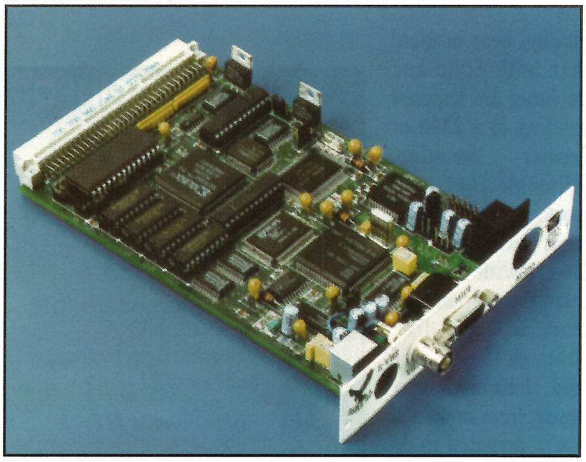
Supplier	*Computer Concepts Gaddesden Place Hemel Hempstead Herts HP2 6EX. Tel. 0442 63933*
Product Price	*Impression Publisher £169 ex. VAT Upgrade from Impression II £29 ex. VAT*
Product	*Impression Style Price £99 ex. VAT Upgrade from Impression II £29 ex. VAT Upgrade from third party package £70 ex. VAT for Style £120 ex. VAT for Publisher*

CONCLUSIONS

Inevitably the prospective purchaser is going to ask which of the two products he should buy. And inevitably there is no simple answer, it all depends on what you want to do. If you were happy with Impression II and don't want to be hassled with complex problems revolving around embedded graphics or need to use colour separation or PostScript, then Style will probably be all you need. On the other hand, if you have a burning desire to be a newspaper magnate and want to use all the facilities that a competent DTP package at the leading end of the market can offer, then you should take a long look at Publisher. Both products come bundled with Computer Concepts' Equasor, Tablemate and WordWorks applications. As always with Computer Concepts' products, upgrades are available with the price dependent upon the size of the jump - see the Product Details.

What's Cooking at Eidos?

This month Eidos founder Stephen Streater talks about his company and their exciting development work in the video field.



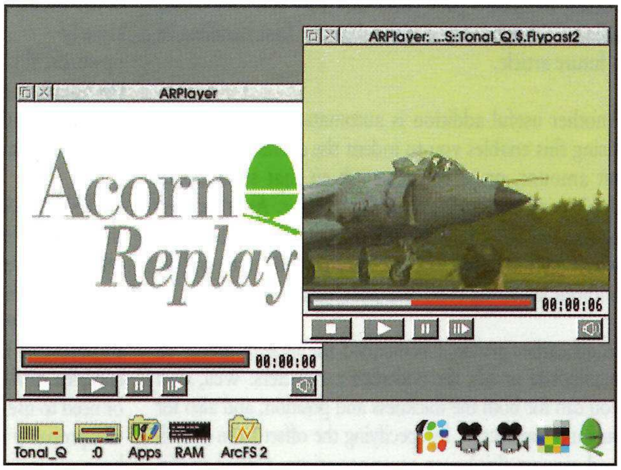
The Computer Concepts Eagle Card uses a codec designed by Eidos

For a long time, computers could handle words but not pictures. The ability to process photographs led to the desktop publishing explosion of the last decade. With the steady advances in computer power, it has been inevitable for some time that computers would become fast enough to tackle real-time video. At some point, video editing software for multimedia presentations would become as common as DTP software is today.

I had been working in the field of image processing for many years, and as I was finishing off my PhD in Artificial Intelligence and image recognition, I was looking for an application of the experience I had gained in the commercial environment. I founded Eidos plc in 1990 to use as the vehicle for my work in this area. These technical advances were to be catapulted into a computer market undergoing a revolution as dramatic as that of desktop publishing a decade earlier - the arrival of video on computer.

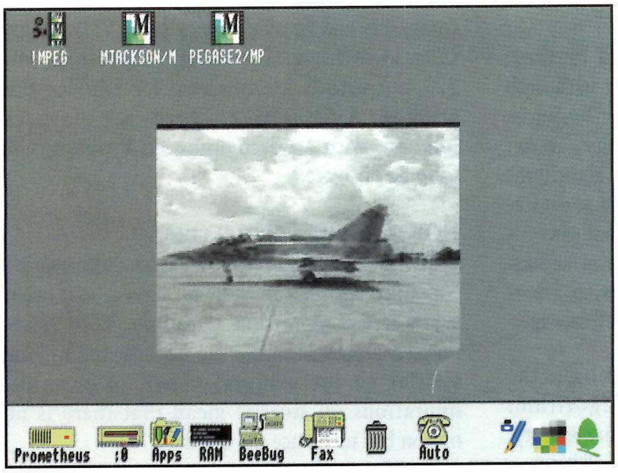
Most high-tech companies in the UK are underfunded. My financial advisers recommended a stock exchange flotation to overcome this problem. We raised £1,000,000 using the rare device of a Green Field flotation on to the Unlisted Securities Market (USM) of the London Stock Exchange. This is the section of the stock market where Acorn Computer Group plc are listed, and it is designed for small, high risk companies. With just over the necessary 100 shareholders, we signed up on Friday November 30th 1990. Being a quoted company has strengthened our position considerably - for example, we raised additional capital with two small share issues last year.

For independent technical advice, I asked the legendary Roger Wilson to come onto our Board as a non-executive Director to advise on strategic developments. Roger's technical advice has helped to keep Eidos at the leading edge of technology. All our products use Acorn machines, and we are now starting to sell directly into the Acorn market. Martin Coulson, the Atomwide wizard, joined us as a Consultant.

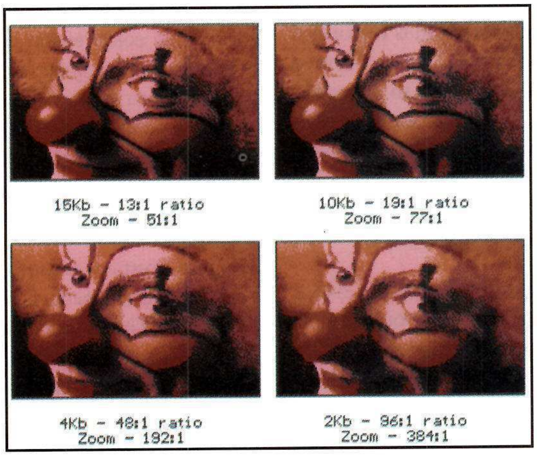


Acorn Replay was written by Roger Wilson, who is now a non-executive director of Eidos

Nick Davies, our former Applications Director had been working in the professional video editing market for some time. He had the vision to recognise the benefits of a computer in his market. Videos are made on cheap equipment at poor quality, before the final product is re-mastered at



MPEG is the industry standard video format



Fractal image compression provides impressive compression which can be adapted to use in video technology

broadcast quality. This is a similar process to that of DTP on screen at 72 dots per inch (dpi) followed by final publication at 2400 dpi.

Although the professional video editing market suffered its worst recession ever as soon as we started, and despite the conservatism of UK consumers and unwillingness to move away from the old tape formats that they had come to know and dislike, Eidos' technical progress continued rapidly. By 1993, we were well placed to expand out of the narrow field of professional video editing, and into much wider markets based on our video compression technology. I brought on a new Managing Director, Charles Cornwall, to help cut the deals, followed by two technical gurus, Simon Protheroe and Brian Brunswick. We are now well placed to exploit the advances in technology we have made over recent years.

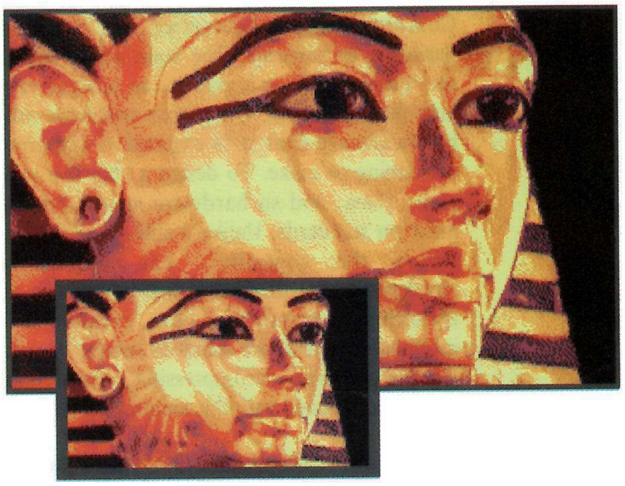
Eidos is now one of the world's leading software video compression houses - it out-performed every other share on the London Stock Market last year. This article explains the market and the technology in which Eidos operates.

THE PROBLEM

People have been able to play back sound and show still pictures on computers for some time now. However, video has remained a difficult problem to crack. To see why this is, consider the data rates for sound and pictures.

CD quality audio is sampled at 44,100Hz at 16 bits per sample and in stereo. This corresponds to a data rate of 1,411,200 bits per second (bps). By sampling at a lower rate, sound quality will still be reasonable, and more data will be available for moving images.

In the UK, broadcast quality video has 25 frames per second (fps), each consisting of two fields. Each frame has a resolution of 768 by 576 pixels, with colour about 24 bits per pixel (bpp) RGB. This corresponds to 265,420,800 bps. Film is even higher quality, say 4000 by 1600 pixels at 30 bpp, 24 fps equivalent to 4,608,000,000 bps. So, to store a typical two hour feature film would need 4,000,000 MB of disc space. This would take about 100 years to send down a fast modem.



THE SOLUTION

The solution to the problem caused by these huge numbers is compression. But although radio, TV and tape formats sold in the consumer market use analogue technology, most compression techniques are based on algorithms which can only be implemented on a digital computer. Because bandwidth is limited, there is more and more pressure to use digital signals and digital compression techniques to allow computerised video communication and storage.

There are three constraints which limit the performance of a compression algorithm: compression time, data rate and picture quality. The best compromise depends on the application.

In a CD-ROM system, compression is performed only once, but playback may be performed millions of times. It makes sense to relax the limits on compression time, and use non-real-time compression, but aim at the highest possible picture quality. The Moving Lines compression algorithm designed by Roger Wilson at Acorn for Acorn Replay is aimed at this market.

In a telecommunications environment, like a video phone, the compression must be real-time and the data rate must match the network (ISDN 2 at 128kbps or PSTN at 14.4kbps) which means that the quality takes all the slack.

HARDWARE VS SOFTWARE

Compression can be carried out either in hardware or software. The main advantage of the former solution is that it can achieve very high picture quality. The biggest problems with hardware are that it is expensive and time consuming to make. To design a chip can take many years, and so hardware manufacturers insist on standards. Unlike a software solution, where the computers can be easily reprogrammed, a hardware solution relies on an inflexible algorithm. This means that incompatible hardware solutions cannot be used together, whereas decompression software can always be included with the compressed video.

The Eidos approach is quite different. We use an accepted standard - the computer. The decompression code can be ported easily and moulded to the particular application. RISC processors are ideal for video processing, because their efficient and flexible instruction sets are well suited to a software approach. Computer upgrades continue relentlessly. Even cheap computers will be able to play back VHS quality video in software. The ARM 610, costing only $20, is currently the best chip for fulfilling this promise. A $100 MPEG hardware playback solution, with no decompression facilities, will soon be obsolete.

HOW COMPRESSION WORKS

When compressing a text file, all the information contained within it must be preserved, so it needs a loss-free compression algorithm. With video, the decompressed image usually only has to look similar to the original. Also, in practice, limitations on storage mean that there is no option but to reduce the quality.

Typical videos are representations of the real world, so compression can be designed so that these videos compress well. Many things which happen can be predicted. Only information which cannot be otherwise reconstructed during playback need be stored. The better the computer is at understanding what is going on, the more compressed the video can be.

Images contain smooth areas, which can be compressed independently of any other frames in the video. This is called intra-frame compression. Also, if there are repeated references to the same object, they need only be stored once.

Video frames represent scenes which are very close together in time. This means that very little happens between consecutive frames. If something is moving at 10 pixels per frame, its new position can be predicted with a high degree of accuracy. This inter-frame compression reduces the data rate by many times as only differences between frames, or delta frames are stored. To facilitate starting playback in the middle of the video, complete *key* frames occur every now and then.

Developers have to be aware of how the eye and brain perceive video to make the information thrown away as imperceptible as possible. One example of this is that, although the eye is very sensitive to what colour something is, it is not very sensitive to where this colour is, particularly on fast moving objects. A typical video compression algorithm will have reduced colour resolution.

COMPRESSION STANDARDS

Most standards do not define how to compress a video so much as what the compressed bitstream must look like. Thus a decoder can read any standard format file. Each video supplier can decide on the quality and resolution of the video. For any given data rate, different implementations vary widely in image quality.

Experiments show that people find it more important for images to look realistic, than for them actually to be accurate. Although this sounds surprising, my experience confirms it. Furthermore, people tend to believe that the appearance of analogue VHS means high quality. The Joint Photographic Experts Group (JPEG) compression method was designed to achieve this.

The Movie Photographic Experts Group (MPEG) format is like JPEG but is adapted for moving pictures. It includes motion estimation and can make use of the relationships between frames. Compression usually takes a long time, but dedicated systems have come down in price from £500,000 to £20,000. Playback boards are much cheaper - between £250 and £1,000 depending on the volumes.

H261 is the poor man's MPEG. It is designed for real-time compression as well as decompression, and for low bit rates. It is being used in ISDN videophones at 128kbps.

Fractal compression is based on the assertion that parts of a scene are self-similar. Finding the relationships is time consuming, but replay can be real-time. The principles behind it are interesting, particularly to someone who has a deep interest in fractals.

Video is now so important that computers have standard architectures which allow video encoders and decoders (codecs) to be added. The Eidos codec currently runs under Acorn Replay and Video for Windows.

ACORN PRODUCTS

So what is possible today in software on an Acorn computer?

With real-time compression we achieve:

- about ¼ resolution VHS colour (160 by 128, 15bpp, 12.5 fps) at ¼ to ½ CD-ROM rates of playback
- ¼ VGA resolution grey scale (256 by 256, 5bpp, 3-12fps) at 64kbps

With compression rate limited we achieve:

- PSTN modem (14.4kbps)
  - up to 10fps, 256 by 256 eg. videophone working on normal telephone lines
  - up to 4fps, 512 by 480 eg. security system
- ISDN 2 (128kbps)
  - up to 18fps, 320 by 240, colour + sound eg. videophone and video conferencing
- CD ROM (1.5Mbps)
  - VHS quality

With fixed quality we achieve:

- Quarter VHS resolution (160 by 128, 32,768 colours)
  - real-time compression at 250-750 kbps
  - non real-time compression at 64kbps
- near VHS resolution (320 by 256, 32,768 colours)
  - non real-time compression at 600kbps
  - to be reduced to 128kbps by 1996.

The Wild Vision Eagle card and Computer Concepts *TakeTwo* application include the Eidos real-time codec as standard, with the Acorn Replay extension to allow playback.

With a low cost real-time compression solution now available on the Acorn platform, we are porting our professional editing system *Optima*. This is a fully featured system including a wide selection of mixes, wipes and digital video effects.

THE FUTURE

Three huge markets are merging - Computing, Entertainment and Communications with Eidos at the crossroads. Just as everyone needs an operating system on their computer, everyone will need video. But video will not just be needed on computers, but on communications devices and games machines - the Eidos market is potentially much bigger than that for computers.

Further into the future, image compression will just be a small part of our product range. Already security systems can benefit from motion detection, and soon virtual reality (VR) systems will support games where computers will create accurate images from their own internal models of the universe to video quality in a way which allows the user to interact directly with the VR characters.

As quality reaches the required levels, and cost and flexibility becomes the major issues, the software approach will ultimately triumph.

Exploring Replay

Lee Calcraft takes a look at Acorn's Desktop Video Solution.

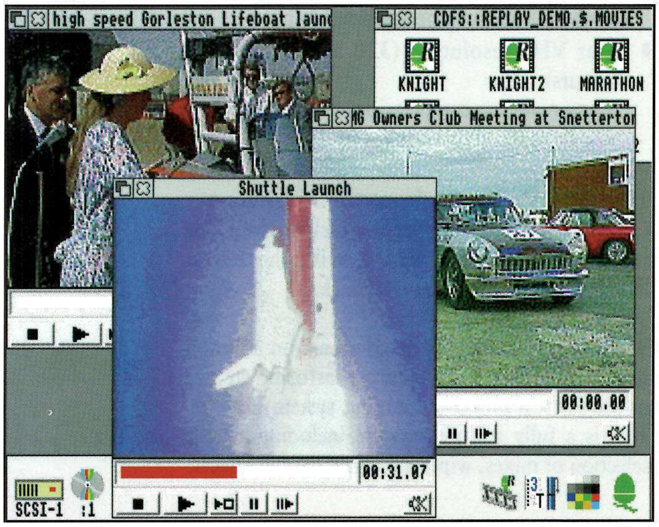
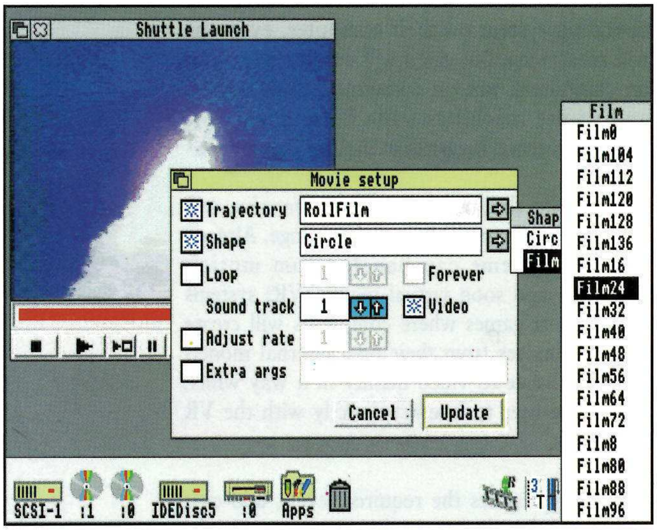

high speed Gorleston Lifeboat laun
CDFS::REPLAY_DEMO.$.MOVIES
KNIGHT
KNIGHT2
MARATHON
MG Owners Club Meeting at Snetterton
Shuttle Launch
00:00.00
00:31.07
SCSI-1 :1

Figure 1.
The new version of Replay running with multiple windows



Movie setup
☒ Trajectory RollFilm
☒ Shape Circle
☐ Loop 1 ☐ Forever
Sound track 1 ☒ Video
☐ Adjust rate 1
☐ Extra args
Cancel Update

Figure 2.
The setup dialogue box, with new Shape and Trajectory menus

The display of moving images forms an important element in the headline grabbing world of multi-media. And thanks to the speed of the ARM processor and the diligence of Acorn's programmers this world is open to all Archimedes users without the aid of special hardware add-ons.

All you need is one or more movie sequences packaged up as Replay files, and a suitable piece of software to play them. In practice, you are more likely to come across Replay movies if you are a CD-ROM user because all but the shortest movie sequences are a good number of megabytes in length, and are not readily distributable on floppy disc. Commercial CD-ROMs such as the Dictionary of the Living World, and British Birds, for example, contain excellent Replay clips, as does Acorn's *Replay VideoClip Collection One*, though this latter is no longer available.

But CD-ROM is not the only means of distributing Replay movies, and purchasers of the Risc PC will find a number of Replay clips on the hard discs of their new machines. You can also make your own Replay sequences using Irlam's ReplayDIY or CC's Eagle II multi-media card. Additionally, Uniqueway (0222 644611) offer a mastering service, turning video tape into Replay movies at a very reasonable price - and indeed it is Uniqueway that have generated the majority of Replay sequences currently available in the Acorn world.

PLAYING DESKTOP MOVIES

Acorn supply two pieces of software for playing Replay sequences:

ARMovie and
ARPlayer

both written in Basic (though ARMovie uses embedded assembler), and both recently re-released with enhanced features. The first behaves as a piece of system software in many respects, and actually contains the code for playing movie sequences, while the second provides a shell giving the user a Desktop application.

If you double-click on a Replay file, the movie will play at a quarter-screen size in the middle of the Desktop, freezing out all other activities but the mouse, which can be used to pause or halt the display. If you drag your Replay file to ARPlayer you get a more civilised state of affairs in which the movie plays within a Desktop window which contains a full set of controls. Because of the intense demands on the processor however, all other Desktop activities are still frozen, and you cannot drag the window around unless the movie has been stopped.

As to the quality of the movie, that all depends on the settings used when the Replay file was generated, as well as the degree of change from one frame to the next. Replay files use a differential compression technique in which frames are stored as a series of differences from successive previous frames. Every two seconds or so in the sequence a so-called *key frame* is stored, which contains the full information needed to reproduce it. This means that although you cannot play back a Replay movie in reverse, you do not need to back-track for more than two seconds' worth in order to start viewing at any arbitrary point.

All Replay movies store their images in 16-bit colour, and generally speaking will reproduce better on a Risc PC or an Arc with a Colour Card than on a bare 8-bit machine - especially since there is no time for dithering during playback, so some colours will simply appear to be *wrong* when viewed with an 8-bit palette.

SOUND

The Replay file format can handle digitised sound, and most Replay clips contain a good quality sound track which replays through the computer's loudspeaker.

In fact you can even use Replay files to store sound-only movies, and Acorn provide an application called *MultiSound* for playing them back. Unlike ARPlayer and ARMovie, this works in the background, allowing full access to the Desktop during playback, and indeed I am listening to a snatch of Sleeping Beauty as I write these words.

MOVIE CLIPS IN YOUR OWN PROGRAMS

Although you can play Replay movies directly on the Desktop using the ARMovie or ARPlayer applications, it is also possible to play them in your own programs. This is achieved by calling ARPlayer from the command line. It can be achieved with a single OS call of the form:

```
SYS "Wimp_StartTask","Run <Movie$Dir>.Shuttle
```

This will play a movie named *Shuttle* stored in the directory <Movie$Dir>. Calls of this kind can be issued from any running Wimp program, and will result in the movie being played at a quarter screen size on the Desktop. On completion, control will return to the calling application.

This call can also take a wide range of parameters which can be used to specify things such as whereabouts on the screen the movie is to appear, what frame it is to start at, how many frames it will play for, and whether it is to occupy a full or quarter screen. You can also specify parts of the screen that will contain active control buttons, including Stop, Play, Pause, Fast Forward, Single Frame Advance, Mute etc. - though your program will need to display the buttons itself.

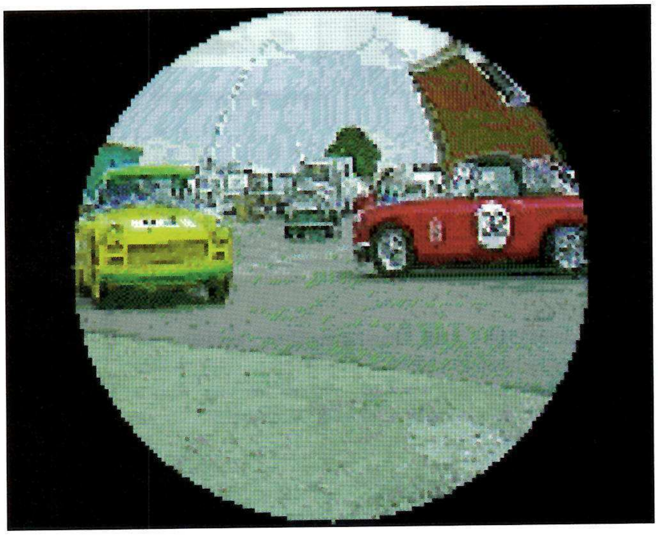


Figure 3.
Projecting a movie onto a sphere. At full screen size the low resolution of the image shows up (the movie is from the old VideoClip Collection One)

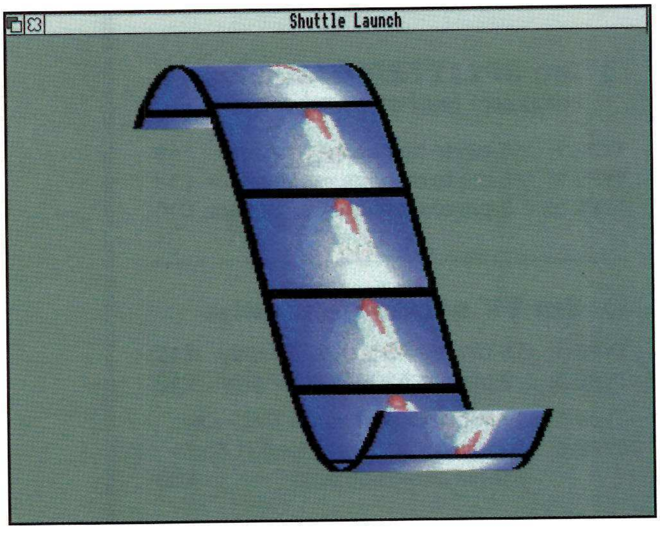


Figure 4.
Projecting a movie onto a roll of film

ENTER RELEASE II

This all works rather well, and the new release of the software is even better. In particular it allows you to play movies in non-rectangular viewers on the Desktop, and even to supply a trajectory along which this shape is moving. Perhaps the most dramatic example of this is the bouncing ball scenario. Here the movie plays back as if projected onto a sphere, which bounces around the Desktop, complete with elastic squashing effects as it hits each surface. Other effects include a variety of film sequences where each cell of an unrolled film contains the moving animation (see figure). These effects are controlled from a dialogue box which offers a range of options based on the particular Shape and Trajectory description files present. You can also adjust the playback speed from here, and specify sound-only replay, in which case multi-tasking is fully enabled during playback.

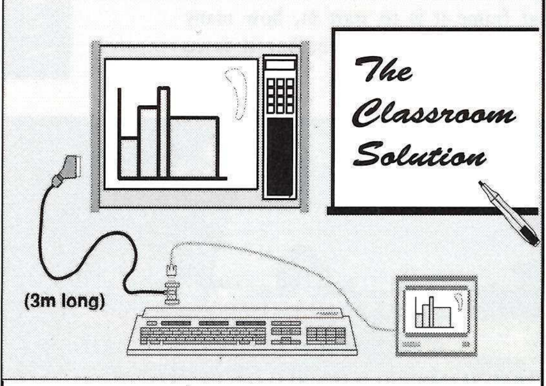
But enough of the fancy tricks! There are two more features of the new version of Replay that will prove useful. Firstly ARPlayer is no longer restricted to a single window: you may have as many movies open on the Desktop as memory allows, though you can still only play one at a time. Secondly, ARPlayer provides a number of rudimentary editing features. The ARPlayer application itself provides a variety of save options, allowing you to extract the soundtrack, the so-called *helpful sprite* (the sprite which appears when a Replay file is first loaded), the movie header, and even the data for individual frames. This can then be reassembled using one of the utilities supplied in a special Tools directory.

HOW TO GET A COPY

The Risc PC currently contains an intermediate version of Replay which has all the features described above, though its set of shapes and trajectories are limited, as are the supplied tools.

But in June or July of this year Acorn are aiming to release their complete Replay suite on a multi-media CD-ROM, which will also contain a good number of Replay movie clips together with a selection of still images in JPEG format and a set of MIDI sound files. There will also be demonstration versions of five important multi-media packages: Genesis, Morph, Magpie, PhotoBase and Empire. Acorn have already set the price for this product at a very reasonable £30. It is just the thing for demonstrating the power of the Archimedes and Risc PC platforms, and I have already ordered my copy! uR

TV SPLITTER CABLES
FOR THE CLASSROOM



A complete and inexpensive range of cables is now available - designed in association with Acorn Computers Ltd - to allow any Acorn computer and monitor to be connected to a classroom TV.

Classroom demonstration software (such as ***Autograph***) ideally needs a large screen. Many classrooms already have a TV for video playback, and most TVs now have a SCART connection at the back: this gives a **bright, crisp image** using the R•G•B signals directly - and you can write on the screen with a white-board marker pen.

○ **3m SPLITTER CABLES:**
computer - teacher's monitor - TV

TYPE 1:	15-pin to multi-sync monitor	£16
TYPE 2:	15-pin to medium res. monitor	£16
TYPE 3:	9-pin to medium res. monitor	£16

○ **3m TV connection only:**

TYPE 4:	15-pin (eg A3010) to TV only	£12
TYPE 5:	9-pin (eg A3000) to TV only	£12

Type 5 may not work with some TVs - use:

TYPE 6:	Acorn "Active Scart" lead [1.5m] + 9-pin extension lead	£39

Further details *(requisition orders accepted):*

EASTMOND PUBLISHING Ltd,
33 West Street, Oundle,
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Contact: Douglas Butler

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ImageMaster with TWAIN, gives you access to high quality A4 flat bed colour scanning at low PC market prices, and lets you use your scanner from more than one program.

ImageMaster - Image processing/acquisition.

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- Handles images bigger than RAM - "virtual memory".
- TWAIN compliant.
- Works with 1,2,4,8,16,24 and 32 bit per pixel images. Inc. Acorn 16 and 32bpp sprites.
- Processing, resample/rescale, user filters, colour balance, non-linear contrast adjustment. Supports RGB, HSV and CMYK.
- Editing, Rotate, Crop, Shear, Flip images.
- Change colour resolution, with Floyd Steinberg and ordered dithering. Optimised palettes.
- Trace (convert sprites to Draw files), D2Font (convert Draw files to fonts). Snapper (screen capture program), Zero (photocopier).

TWAIN - Scanner drivers

TWAIN is the name of a standard range of scanner drivers. Like printer drivers, these mean that any program that supports the TWAIN interface can use the driver. Available scanners;
Epson GT 6500, GT8000 HP ScanJet IIp, IIc, IIcx
Canon IX 3010 (CC Scanlight Pro) IX4015 (colour version).

ImageMaster+TWAIN for one scanner £35.00 (inc VAT and carriage)
ImageMaster alone £30, TWAIN drivers alone £20.

Chess
A Chess program that takes full advantage of RISC OS, running on the desktop in a window. You can work with other programs whilst you play Chess. Many features, computer play, hint, save games, edit etc. BAU Oct '92 said "Chess costs much less and plays better (than Cyber Chess)".

Spell. Desktop spelling checker
Provides all the features possible in a stand alone spelling checker. Check files, check text in icons, continuous spell check whilst you type, display and correct last error. Edit dictionary. Multiple dictionaries. Supplied with 200,000 words. Fast.

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CrossStar 2.XX Crossword puzzle solver
Fully RISC OS compliant desktop Crossword puzzle solver. 200,000 word dictionary. Solves interlocking clues. Editable/user definable dictionaries. Saves grids as Draw files. Browse through dictionary. Check grid for new words.

Chess, Spell, Panorama and CrossStar £10 each (inclusive).

A new version of the Charm language...

Supplied on two discs, featuring more example code and new features, and with an extensive printed manual. The new price of Charm is £25.00, upgrading from the Charm disc to the Charm pack, costs £18 + your old disc.

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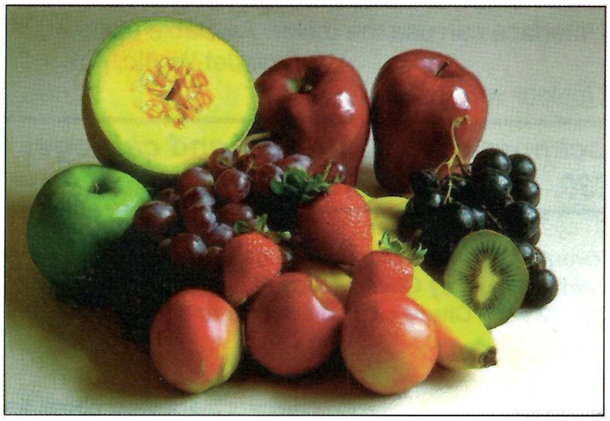
Risc PC: First Impressions

Lee Calcraft finally gets his hands on a Risc PC, and puts it through its paces.

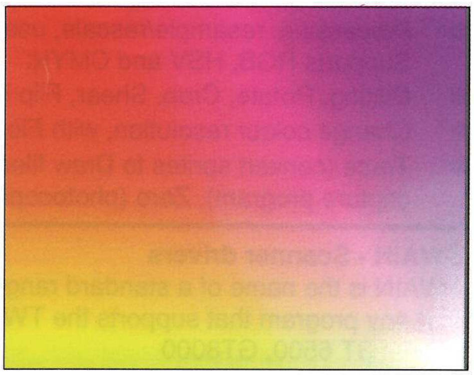
Last month we carried a series of reviews of Acorn's brand new clutch of machines. These were written on the basis of fleeting visits to Acorn House, and the more extensive use of early development machines. But the production lines are now beginning to roll, and Risc PCs are finally changing hands. There were even a few on sale - yes actually on sale! - at the Risc Developments open day last Sunday. And a few days ago, Acorn delivered me a review machine. What follows are some initial reactions to this powerful and delightful computer.



16-bit photographic realism with SlideShow

I had no choice over the model on offer, and what I finally received was a single slice machine with 8Mb of DRAM and 1Mb of VRAM. I'll translate: the case was a single-decker type, with 8 megabytes of 'ordinary' dynamic RAM (DRAM), and 1 megabyte of video RAM (VRAM). Both drive bays were filled. To the right was a standard 3.5 inch floppy drive, and to the left a CD-ROM drive - a Sony CDU-561 double speed Photo-CD compatible drive. Incidentally, you can check what SCSI devices you have attached by hitting F12 and typing *Devices* at the command line.

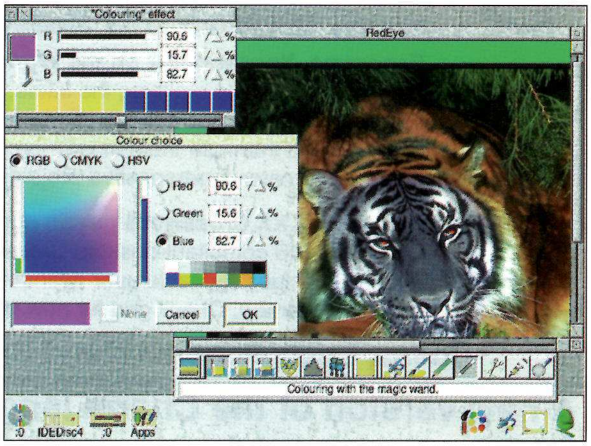
The accompanying monitor was an AKF60. This is the cheaper of the two monitor options offered with the Risc PC, but really performed impeccably.



32,000 colours, and no joins

STUNNING PHOTOGRAPHY

One of the nice things about the Risc PC is that the hard disc already has a good selection of programs and resources to get you going straight away. The first thing that I tried was the *Images* directory. This contains a modestly named application called *SlideShow* which cycles through the one hundred high resolution 24-bit colour images supplied with the machine.



Retouching a tiger with PhotoDesk

The results are quite stunning (and I do not use the word lightly), and caused audible gasps and jaw-dropping whenever I showed them off. The pictures are supplied in the highly-compressed JPEG format, and emanate from the Corel Corporation. They have been professionally taken, and this really does show. The on-screen quality is far in excess of that which you would get from carefully processed 35mm colour prints - even on the AKF60 monitor. One final point - the SlideShow application performs miracles. It decompresses each JPEG image on the fly and cross-fades it into the currently displayed image in little over a second - which is astoundingly fast work.

DESKTOP MOVIES

The next directory worth checking out is *Video*. This contains four Replay movies: *Birds*, *Launch*, *LionFish* and *Rafts*. Just double-click on any of them, and sit back and watch. The resolution of these video clips is definitely a good bit better than those on the original Replay CD-ROM that Acorn produced - aided partly by the fact that we are playing off hard disc rather than the slower CD-ROM, the fact that the Risc PC is faster and is not limited to 256 colours, and the fact that Acorn are using new compression algorithms to create their movies - these are based on the so-called *moving block* algorithm rather than the *moving lines* algorithm used previously.

Machines for reviewers also had a further bonus in that an extra directory named *Films* contained ten further Replay clips. These included long title sequences from *Star Trek the Second Generation*, *Doctor Who*, and *Film 93*, and were very impressive indeed. Unfortunately, Acorn's licence for these clips restricts their use to demonstration purposes, and they are not supplied as standard.

MODE TESTING

To check out the combination of Risc PC and monitor, I next experimented with the different modes available. As you may know from our reviews last month, you now select modes by specifying the required number of colours, and the screen resolution. The AKF60 supplied handled all resolutions competently, and without flicker, right up to 1600 x 600 pixels, where the scale is such that you can get some 35 icons on the icon bar. And even at this resolution, I was still just able to read text in the system font. Such modes would be ideal for DTP work, allowing you to work on a full double page spread. Coming up a step, the 1024 x 768 pixel modes are very clear, and still give a massive desktop.

Back at the other end of the scale, it is still possible to use the time honoured modes 12 and 15. Officially these are only represented in so-called "pillar box mode", but it is a very deep pillar box indeed, with only an inch or so of unused screen at top and bottom.

GRAPHICS

As a further test I wrote a very short Basic program to fill the screen with red, yellow and blue areas which blended into each other (see figure 2) - and even using 'only' a 32,000 colour mode, you really can't see the joins:

```
MODE "X800,Y600,C32K,EX1,EY1"
GCOL 128,100,100,100:CLG:OFF
FOR A=255 TO 0 STEP -1
  FOR B=0 TO 255
    GCOL 255,255-B,A
    RECTANGLE FILL 160+A*5,100+B*4,4,3
  NEXT
NEXT
```

Incidentally, I couldn't really run this with 16 million colours, because the machine supplied only has 1Mb of VRAM (video RAM), and although you can get this colour depth without the 2Mb upgrade, you are limited to a paltry 480 x 352 resolution, which quite spoils the effect. Unfortunately, this is even the case with Acorn's top-of-the-range machine, and to get a full 2Mb of VRAM you are forced to upgrade!

As a final test, I loaded some of the excellent JPEG images supplied, into a pre-release version of *PhotoDesk*, Spacetech's new 24-bit art package. Even in its pre-release form, this is already a very versatile product. It only took a minute or so to attack the *Tiger* JPEG, applying Toning in blue at 50% with its excellent airbrush in the region around the face, to give a mono effect, and then select opaque Colour and apply it in red with a small brush to the two eyes. You can see the results in figure 3, which also shows Acorn's universal Colour Picker in action.

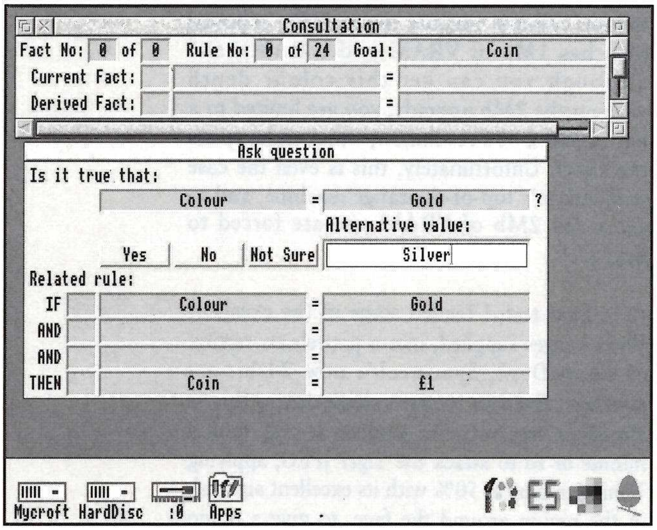
CONCLUSION

Clearly the Risc PC is an excellent machine, and one which comes with a very competitive price tag. The thorough thrashing which I have given it over the last few days has done nothing to dampen my enthusiasm for it. I even like the keyboard, having got used to its new PC style layout. Well done Acorn, and can I please keep this review sample for just a few days longer?

Expert Witness

Robin Watts interrogates and reviews the Observess expert system shell from Cherisha Software

For many years, one of the fields of computer science that has attracted the most attention is that of artificial intelligence - the idea of producing machines that can *think*. This has been toyed with for years, but so far relatively little progress seems to have been made.


Consultation

Fact No: 0 of 0 Rule No: 0 of 24 Goal: Coin

Current Fact: =

Derived Fact: =

Ask question

Is it true that:

Colour = Gold ?

Alternative value: Silver

Related rule:

IF Colour = Gold

AND =

AND =

THEN Coin = £1

Consulting the Observess coinage knowledge base

A major reason for this is simply the vast quantities of data involved; in order for a machine to act like a human it needs to have access to the huge amounts of background information on which we base our decisions. Every time we choose a course of action (be it whether to go out with or without a coat, whether to cross the road, or to turn left or right at a junction) we subconsciously consider many different factors.

The effort involved in moving all this information onto a computer is a huge one - every piece of information you give the computer seems to require several others to put it in its context. To try and counteract this problem a sub-field of artificial intelligence has sprung up - that of expert systems. Here the computer is only fed information on very limited subjects - hence it becomes an *expert* in one particular field, and remains totally ignorant about everything else. In common with many human experts, the computer is not much good at conversation, but if you just answer its questions you will probably get a reasonable response.

An expert system can be neatly split into two sections. Firstly, there are the rules it applies - known as the *knowledge base*. These can be given in various forms, but the most common is known as the IF - THEN method (more about this later).

The second part of the expert system is known as the *inference engine*. This is the part of the program that actually tries to apply the rules from the knowledge base to build up a dictionary of *working facts* and to draw conclusions from these.

Traditionally, expert systems have been written from scratch as they are required, but more recently people have begun to take advantage of this split. Expert systems have appeared which contain an inference engine, but no knowledge base. Users can add their own knowledge base, and effectively build expert systems for themselves. These systems are known as expert system shells.

The first such shell to appear for the Arc is called *Observess* from newcomer *Cherisha Software*. Observess is a Desktop application that allows you to enter and edit rules to build your knowledge base, and then consult with the expert thus formed. The knowledge base can then be saved out as a datafile and distributed to other users.

Observess installs an icon on the icon bar which when clicked produces a window that shows information about the currently loaded knowledge base - its title, purpose, size etc. To create a knowledge base we simply fill in these fields and then add all the rules required using the *Add Rule* menu option.

Observess works by keeping a list of variables and their values. The program will first try to apply its rules to work out values for each of the variables, but if this fails it will ask the user a question designed to elicit enough information to work out more about a variable's value.

Ultimately Observess tries to obtain the value of a *Goal* variable, and will make recommendations as to what value it thinks this variable has. On the way you can give it some *Sub-goal* variables, and it will tell you as it discovers their values.

Each rule is given in a Basic-like IF - THEN format. In the following syntax definition, angle brackets indicate parts that should be replaced with appropriate names and square brackets enclose optional parts:

```
IF      [NOT] <>variable1> = <>value1>
   [AND [NOT] <>variable2> = <>value2>]
   [AND [NOT] <>variable3> = <>value3>]
THEN    [NOT] <>variable4> = <>value4>
```

This form for rules has the benefit of being extremely simple, but it has various disadvantages. Firstly, there is no simple way to do *OR*s. For instance to do:

```
IF coin = 1p OR coin = 2p THEN metal =
copper
```

requires two separate rules:

```
IF coin = 1p THEN metal = copper
IF coin = 2p THEN metal = copper
```

Secondly, to do a rule with more than 3 conditions requires the use of a 'link variable':

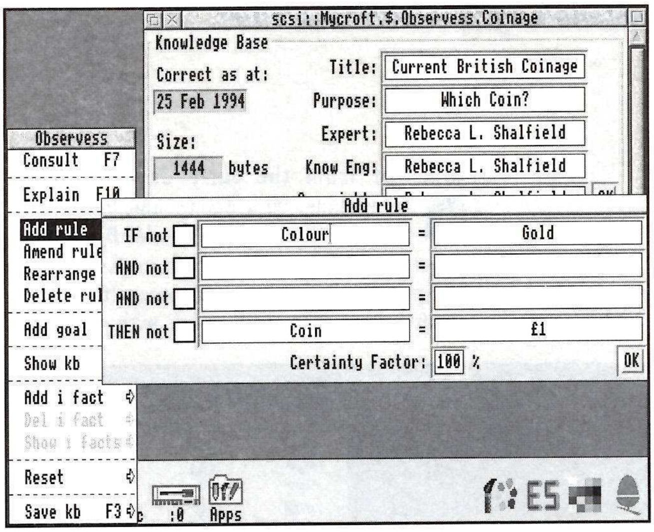
```
IF publisher = Cherisha AND author =
Shalfield AND subject = ExpertSystems
THEN !link = true

IF !link = true AND computer =
Archimedes THEN program = Observess
```

Such cases have been considered by the author though and are mentioned in the manual. While consulting the expert, you obviously do not want the user to be asked what value 'link' should have, as he will probably have very little idea what 'link' means. To this end, prefixing a variable with '!' (as above) indicates that the computer may never ask questions about this variable.

There are some other drawbacks to the simple form of rules used here - frequently an expert is expected to make decisions on incomplete data. For instance if a torch doesn't work and the batteries aren't flat, then you can be fairly sure that the bulb has gone, rather than one of the wires inside the torch having broken. But how do you express this probability in an expert system? Observess solves this by the cunning expedient of adding *Certainty factors* to each of its rules. Every rule is given a percentage which represents how likely it is to be true. So the situation with our broken torch would become:

```
IF NOT batteries = flat THEN reason =
brokenbulb
(90%)
```



scsi::Mycroft.$.Observess.Coinage

Knowledge Base

Correct as at: 25 Feb 1994

Size: 1444 bytes

Title: Current British Coinage

Purpose: Which Coin?

Expert: Rebecca L. Shalfield

Know Eng: Rebecca L. Shalfield

Add rule

IF not ☐ Colour = Gold

AND not ☐ =

AND not ☐ =

THEN not ☐ Coin = £1

Certainty Factor: 100 %

Building up a knowledge base is a simple matter of adding rules

Using these percentages Observess can be made to come up with suggestions in much more complex cases than it could otherwise. It will even give you several recommendations and the percentage chance of each one.

Once you have the knowledge base in place, you can then *Consult* with your new expert. To do this you simply choose the *Consult* option on a menu, and answer the computer's questions. For instance in the supplied *Coinage* knowledge base we are asked:

```
Is it true that: Colour = Gold ?
```

To which you can reply 'Yes', 'No', 'Not Sure' or give it the actual colour.

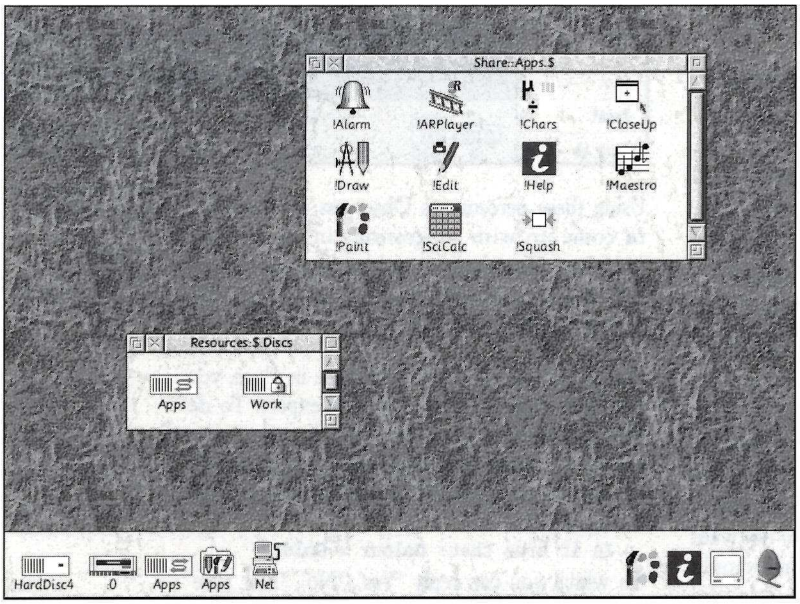
After a few such questions, the computer either tells you what coin you are talking about, or if you go out of your way to confuse it, it tells you it can't make a guess.

You can distribute copies of your new knowledge base to all your friends, but without Observess they would be of little use. To get around this, Cherisha provides a run-time version of Observess that can be freely distributed. This version contains the inference engine and consultation facilities, but cannot create or modify knowledge bases.

Acorn Access

David Spencer looks at a new concept in networking for Acorn machines.

Right from the early days of Acorn networking, with Econet and the Level 2 fileserver on the BBC model B, a client-server strategy has always been used. With this system a number of users' computers (the clients) communicate over the network with specialised server machines. Typically there will be a fileserver computer which contains a large hard disc and stores all the users' files; printer servers for supporting printing across a network; and perhaps other specialist servers such as one to download data via a modem. The current Acorn Universal Networking (AUN) strategy uses a client-server setup with the Level 4 fileserver software, and with Ethernet providing the physical network cabling system.



Access in action

There is however, a fundamentally different networking strategy known as peer-to-peer networking. The difference here is that there are no special servers on the network. Instead, any computer connected to the network can have (in theory) access to the resources (hard drive and printer etc.) of any other computer on the same network. So, for example, if two computers were connected together, but only one had a hard drive, the users of both would still be able to access data on that drive - one directly and one across the network. The beauty of this approach is that you no longer need to tie up precious hardware as servers.

ENTER ACCESS

Acorn Access is a new product from Acorn that provides a peer-to-peer system for all RISC OS 3 computers. It allows a number of computers to be linked via Thinwire Ethernet cabling. In theory up to thirty computers may be connected, but a more realistic limit would be a maximum of ten.

Access is designed as a plug-and-go package, which means that any user can install an Access network without expert help or knowledge simply by buying one pack for each computer. To this end, Access is packaged in a glossy colour box with a list of key selling points on the back - a far departure from Acorn's normal plain brown cardboard used for peripherals. Inside the pack is a Thinwire Ethernet card, two 2m cables, a network T-piece, a network terminator, a joiner to join the two cables, a utilities disc and the documentation described later. Access in fact comes in three flavours depending on the computer it is intended for - A5000 (and other Arcs), A3000/A3010 and A3020/A4000. Risc PC owners can use the A5000 version as is, but it is likely that a version of Access with a card for the Risc PC network slot will also appear.

Setting up Access is very simple. You must install the Ethernet card in the computer, and then connect up the network using the cables and hardware supplied. The cabling components supplied have been carefully chosen to allow either a trailing lead network to be set up, or connection to an existing cabled network to be made, in both cases without needing any additional items. Indeed, by the time you've set up a few stations you are quite likely to have bits of cable and the like left over.

For a more permanent installation an Acorn network dealer could install the cabling in trunking, with wall boxes for connection to the network. However, the basisc topology of the network remains the same.

Having installed the hardware you need to update the copies of !System, !Scrap and !Printers held on any hard disc with new versions that are supplied on the utilities disc.

USING ACCESS

When you turn on a computer fitted with Access you will see two changes - firstly a new icon called 'Discs' has been added to the icon bar, and secondly a new menu entry entitled 'Share' has been added to all ADFS drives.

To share a hard disc with other users, all you need to do is to open the sub-menu from the 'Share' entry for that drive's menu and click on either 'Share unprotected' or 'Share protected'. The difference between the two is that in the unprotected mode remote users have full access to the drive, whereas in protected mode they are only given the public access rights for each file. In this case, if no public rights are set, then the file is invisible to the remote user. For example, access rights of WR/r would give the user of the machine in which the hard drive was fitted full access to the file, but any remote users could only read it. Access rights of WR/ would hide the file totally from remote users.

To access a shared disc you just click on the 'Discs' icon and a window showing all the available discs is opened. Any discs that are protected are shown with a padlock on them. Double-clicking on a disc in this window will replace the 'Discs' icon with one representing the chosen drive, which can then be accessed just as if it was fitted to the computer directly. Any number of shared discs can be mounted at once, and a menu option allows you to remember the first two and remount them automatically on power up. The whole process is dynamic, with the Discs window being updated as shared discs become available or are made unavailable. If a mounted disc becomes unavailable then its icon is greyed out until such time as it is back on line. All the time, the user of the computer that actually contains the shared drive is unaware of the fact that it is being accessed remotely.

For filing systems other than ADFS, there is normally no 'Share' menu to share discs. In this case you can share them by issuing a command from the command line, which could of course be included in a boot file. Using this method you can in fact share only a particular part of the directory tree, rather than a whole disc, giving it any name you want.

SHARED PRINTING

Printing across Access is as easy as sharing discs. At the computer with the printer attached, the user has to load the new printer driver and select 'Shared' from the printer control window. The remote user then also loads the printer driver and any shared printers will appear automatically in the printer control window. These can then be configured and made active just as for any other printer type. Again, the owner of the printer is unaware that a remote computer is using the printer through his machine.

PERFORMANCE

The performance of Access is very good, exceeding that provided by AUN. Between two ARM 3 based machines the raw data rate is between 300K and 400K per second. However, this is not the whole story, because Access is also several times quicker than AUN when opening directories and caching sprite files. Overall, accessing a shared disc over the network is comparable speed-wise to an ST506 or a first-generation IDE hard disc.

DOCUMENTATION

In keeping with the plug-and-go approach, the Access documentation differs from that normally found with peripherals. Instead, there are two A4 full colour glossy cards. The first of these covers the fitting of the interface to the computer, whilst the second deals with connecting the network and using shared discs and printers. Both cards make use of a large number of pictures.

To supplement the cards there is an 8-page hints and tips guide in a more traditional format. This covers details such as sharing drives from filing systems that don't provide a 'Share' menu entry, updating !System etc., booting from a shared disc and using Access in conjunction with an AUN network. Also covered are incompatibilities with certain older applications.

OTHER ACCESSES

As well as producing Acorn Access, Acorn will licence the Access software to third party network card producers on a royalty basis. This means that other companies active in the networking field can sell their own Access products based around their own cards. In order to claim an 'Access compatible' product, all the other components must be included, such as the cables. The end user can thus be assured that they are buying a product that can simply be plugged into an existing Acorn Access network without any compatibility issues rearing their ugly heads.

PRODUCT INFO

Product	*Acorn Access (three versions)*
Supplier	*Acorn Computers Ltd.* *Acorn House,* *Vision Park,* *Histon, Cambridge CB4 4AE.* *Tel. 0223 254254*
Price	*£145 ex. VAT*

CONCLUSION

The introduction of Access provides for the first time an affordable option from Acorn for linking just a handful of computers together. Couple this with the plug-and-go approach that Acorn has adopted, and Access becomes a very attractive product. Some people will quibble about the price of £145 + VAT, especially when you see PC network cards sold for as little as £39. However, Ethernet on Acorn machines is still in its infancy and volumes are hundreds of times lower than in the PC world. Hopefully the next year or two will see a reduction in the price of Acorn Access, and it is likely that third party Access products will be lower priced anyway.

Certainly, I would recommend any user with two or more Arcs to consider whether Access would be a wise investment. After all, if you do the calculations, installing Access may be cheaper than buying a second hard disc or printer. Similarly, bigger sites that are considering a full-blown AUN system would be advised to look at Access as an alternative.

Expert Witness (continued from page 23)

Obviously with a product such as this, support is almost essential - not because of problems with the software, but because of the unusual nature of its subject matter. Such support is well provided; as well as a postal help-line, there is also a free newsletter, *The Observess Chronicle* that is published every few months.

Throughout the well-written manual supplied with the program, various references are made to future modifications to be made to the program, varying from alternative inference engines to improved interfaces for certain functions. In this way, Observess is certainly a work in progress. The program appears to be developing rapidly in response to comments and requests from registered users. I for one would far rather buy a program that is being kept up to date than one which is slowly stagnating - especially if it is like this one where upgrades are normally free!

Observess comes supplied with 13 example knowledge bases covering a wide range of topics. Some of them, such as *TimesTable* and *Decode* (to calculate times tables and decode encrypted text respectively) are blatantly contrived, but do serve as nice simple examples. More involved examples supplied are *Coinage* (to identify british coinage according to its size and shape), *TrafLights* (to know what to do at traffic lights even if some of the lights are broken) and *RomanNum* (to convert Roman Numerals into decimal).

Others like *AcornCmptr* (a guide to choosing an Acorn Computer according to your requirements), and *Retire* (an expert on women's retirement ages) serve as more realistic examples, and show how complex rules can be encoded relatively simply. A facility to print out complete knowledge bases would be a welcome addition - it would make understanding examples, and debugging your own efforts considerably simpler.

Overall, Observess makes a nice introduction to the world of expert systems. While I can't really see it as a way of making money by creating and selling expert systems, I can certainly recommend it if you are interested in expanding your computing horizons, especially for the meagre asking price.

Using Colour on The RISC PC

David Spencer explores the exciting new range of colours and screen modes offered by the Risc PC.

It's a fair guess that one of the first things that you are going to want to do after unpacking your brand new Risc PC, is play with all those new screen modes and colours it offers, and show it off to your friends. In this article we will explore how to use the new modes and colours, and give some simple programs that show just what the machine's capable of.

ALL SIZES OF SCREEN

One nice feature of the new VIDC20 video controller is that it is much more relaxed about available screen resolutions than its VIDC1 predecessor. Without getting too technical, this is because it contains circuits to let it generate any speed of video dot clock it cares for (within reason). Couple this feature with the fact that almost all Risc PCs will be attached to a multi-scan monitor, and the world's your oyster.

Unfortunately, the time still hasn't come when you can say "I want a display that is 851 by 506 pixels" because the attached monitor will still impose restrictions on what can and cannot be done. Instead, there is a definition file for each model of monitor which holds a list of what display modes are available. Because there is a unique file for each model, the definitions can be highly tuned, for example ensuring that the display is centred and flicker free.

Acorn are supplying two monitors with the Risc PC: the AKF60 and the AKF85. These offer the following resolutions:

Resolution	Frame rates (Hz)	Menu
240 x 352	70	No
320 x 250	70	No
320 x 256	70	No
384 x 288	70	No
480 x 352	70	Yes
640 x 200	70	No
640 x 250	70	No
640 x 256	70	No
640 x 352	70	No
320 x 480	60,72,75	No
360 x 480	60	No
640 x 480	60,72,75	Yes
800 x 600	56,60,72,75	Yes
1024 x 768	60,70*,75*	Yes
1280 x 480	60,72,75	Yes
1600 x 600	56,60,72,75	Yes
1280 x 1024*	60	Yes

The resolutions and frame rates marked with a * are only available on the AKF85.

As you can see, the table is quite lengthy and includes all the standard Acorn resolutions plus PC VGA, SVGA and XVGA formats. You can also see that some resolutions are offered at a number of different frame rates. This allows software (or the user) to specify a higher refresh rate if needed, to provide a more flicker-free display. The column labelled 'Menu' in the table indicates which resolutions appear by default on the mode selector menu. The others can be selected using the method about to be described.

CHOOSING A MODE

With such a choice of resolutions, and the possibility of them changing between monitor models, the concept of mode numbers falls down somewhat. Instead, modes are better specified using a description string. This was described in the article New modes for future machines a couple of issues back, but we will recap here.

The format of a mode specifier string is, for example: "X640,Y480,C32K,EX1,EY1,F60" The numbers after 'X' and 'Y' specify, as you might guess, the resolution. The 'C' setting selects the number of colours (32K or 32T for 32000, 16M for 16 million). Alternatively, G16 or G256 can be used to specify grey-scale modes. The values of 'EX' and 'EY' are the so-called X and Y Eigen factors. These specify the number of times to double the actual resolution to give the resolution in OS units as used by your drawing commands. A value of 1 means that there are two OS units to each actual pixel, 0 would be one-to-one, and 2 would indicate four OS units to each pixel. The settings that a program chooses for these are rather arbitrary, provided it remembers what they are! However, the Wimp always draws system text at a size of 8 by 16 OS units. Therefore the Eigen factors can be manipulated to change the apparent size of text. Finally, 'F' is the desired frame rate, in Hertz. Omitting it results in the default rate for the chosen resolution.

As an example of mode strings from Basic,

```
MODE "X800,Y600,C256,EX1,EY1,F60"
```

would select a 256-colour SVGA mode, whilst:

```
MODE "X640,Y256,C16,EX1,EY2"
```

would select good old mode 12. (You can still use the command MODE 12, but you should really avoid the use of mode numbers in new programs if they are only going to run on the Risc PC.)

When you change mode in this way, Basic actually makes a call to the command *WimpMode. This means that as well as setting the mode, it also sets up the Wimp palette for modes with fewer than 256 colours. You can use a VDU 20 to restore the default palette if you want. You should also perform a VDU 26 to reset the default screen windows, followed by a CLS. This is because the Wimp sets the display area to match the 'command' window that it opens when running a non-Desktop program.

WHAT MODE AM I IN?

Obviously, there are times when a program might like to find about the current screen mode. This can be done in Basic by using MODE as a function which returns a pointer to a block of memory holding information about the mode. The procedure PROCmodeinfo given in listing 1, which works on all versions of RISC OS, will return the screen resolution in both pixels and OS units, and the number of available colours. The procedure returns the information by way of five variables passed to it, these holding the X and Y pixel resolutions, the X and Y OS Unit resolutions and the number of colours respectively.

Listing 1

```
    DEF PROCmodeinfo(RETURN x, RETURN y, RETURN
osx, RETURN osy, RETURN c)
    LOCAL M%,ex%,ey%
    SYS "OS_ReadModeVariable",-1,11 TO ,,x:x+=1
    SYS "OS_ReadModeVariable",-1,12 TO ,,y:y+=1
    SYS "OS_ReadModeVariable",-1,4 TO ,,ex%
    SYS "OS_ReadModeVariable",-1,5 TO ,,ey%
    SYS "OS_ReadModeVariable",-1,3 TO ,,c:c+=1
    IF c=64 THEN c=256
    IF c=65536 THEN c=32768
    IF c=0 THEN c=2^24
    osx=x<<ex%:osy=y<<ey%
    ENDPROC
```

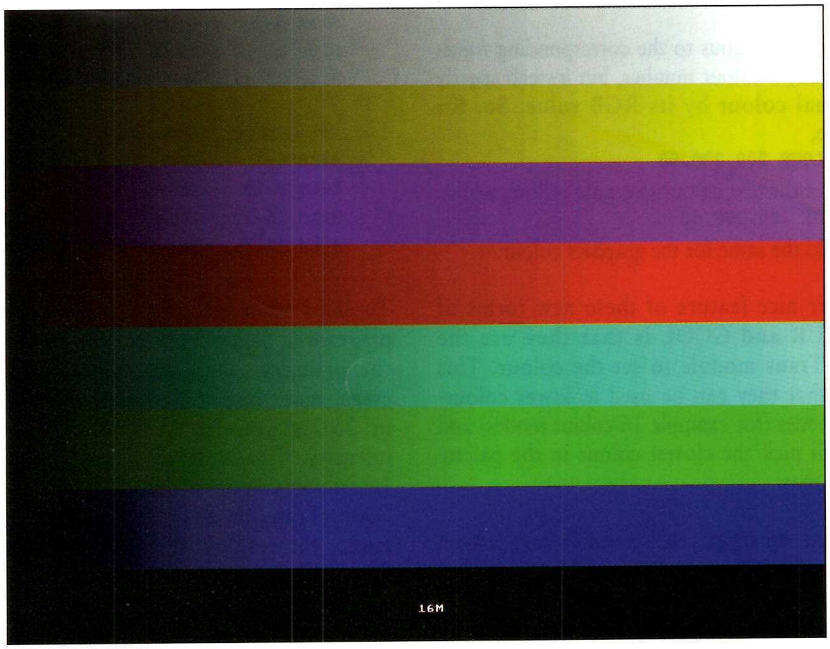
A FINAL NOTE ON MODES

Before moving on, there is one further point about the new mode system that you must know about. Because of the way that Basic works, using MODE with a mode specifier string will change the Wimp mode as well. This means that if you run a non-Desktop program from within the Desktop, then when it completes and returns to the Desktop, it will not automatically restore the correct mode. It is therefore up to your program to make a note of the mode when it is run, and restore it afterwards. This is good practice even when not running from the Desktop, as it returns the machine to the state it was in before running your program.

Unfortunately, the new mode system doesn't look favourably on sticking M%=MODE at the start of the program and MODE M% at the end. This is because MODE as a function will return a pointer to a block of data detailing the mode, and not a simple number. You can't be sure that this data will still be there by the time you quit, and even if it was, it contains no information on the palette settings. Instead, you should use the functions given in listing 2. PROCsavemode should be called before changing mode for the first time, and PROCrestoremode should be called before the program quits.

Listing 2

```
    DEF PROCsavemode
    LOCAL p%,g%,i%,x%,A%,B%,C%,D%,E%,F%
    DIM _myblk% 16
    SYS "OS_ReadModeVariable",-1,11 TO
,,!_myblk%
    SYS "OS_ReadModeVariable",-1,12 TO
,,_myblk%!4
    SYS "OS_ReadModeVariable",-1,4 TO
,,_myblk%?8
    SYS "OS_ReadModeVariable",-1,5 TO
,,_myblk%?9
    SYS "OS_ReadModeVariable",-1,3 TO
,,_myblk%!12
```



The demo program in action

```
      IF _myblk%!12=255 OR (_myblk%!12>0 AND
_myblk %!12<4)
      THEN _myblk%?10=ASC"G" ELSE
_myblk%?10=ASC"C"
      IF _myblk%!12=15 THEN
      DIM p% 80
      !p%=&E1A09005:p%!4=&EF000034:p%!8=&E1B0F00E
      A%=0:B%=&11000010:C%=p%+16:D%=0:E%=7:F%=&23
      CALLp%
      g%=1:FOR i%=p%+16 TO p%+79 STEP 4
      IF (i%?1<>i%?2) OR (i%?2<>i%?3) g%=0
      NEXT
      IF g% THEN _myblk%?10=ASC"G"
      ENDIF
      ENDPROC
      :
      DEF PROCrestoremode
      LOCAL a$
      a$="X"+STR$(!_myblk%+1)+",Y"+STR$(_myblk
%!4+1)+","+CHR$_myblk%?10
      CASE _myblk%!12 OF
      WHEN 1,3,15,255: a$+=STR$(_myblk%!12+1)
      WHEN 63: a$+="256" WHEN 65535: a$+="32K"
      WHEN &FFFFFFFF: a$+="16M"
      ENDCASE
      a$+=",EX"+STR$_myblk%?8+",EY"+STR$_mybl
k%?9
      MODE a$
      ENDPROC
```

An alternative to this is to bypass the Wimp and set the mode at a lower level. This can be done by using MODE <block>, where <block> is the address of a list of data called a mode specifier block. The format of this was described in the article “New modes for future machines” already mentioned.

USING ALL THEM COLOURS

OK, we’ve selected a screen mode with ‘n’ million colours, but how do we use them.

Well, for all but 32000 and 16 million colour modes, you can if you wish still use the same forms of GCOL and COLOUR as on older machines. Not only that, but you also have the bonus that if you use the command COLOUR p,r,g,b to set the RGB values of a palette entry, they can now be set to any value between 0 and 255. In other words, there is always a palette of 16 million colours to choose from even if you can only have a handful of them on screen at once.

To handle 32000 and 16 million colour modes, new forms of GCOL and COLOUR have been added to Basic. These take the forms:

```
    COLOUR r,g,b
    GCOL [<action>,]r,g,b
```

where <action> is the graphics plotting mode (OR, AND, EOR etc.)

These are analogous to the corresponding forms that specify a colour number, but instead specify an actual colour by its RGB value. So, for example,

```
COLOUR 200,200,50
```

would set the text colour to a pale yellow, whilst

```
GCOL 200,200,50
```

would do the same for the graphics colour.

A rather nice feature of these new forms of COLOUR and GCOL is that they use the ColourTrans module to set the colour. This means that they can be used in lower colour-depth modes (for example 16-colour modes) and they will pick the closest colour in the palette and use that.

The astute among you will probably have noticed that as each RGB component can be any number between 0 and 256, there is nowhere to add 128 to set the background colour. And indeed, you're partly right. For GCOL, the background can be set by adding 128 to the plotting action, so for example:

```
GCOL 131,255,0,0
```

would set the background to red with Exclusive-OR plotting. However, the story for COLOUR is not so simple. If you want to set an absolute RGB background colour here, you have to use the following call:

```
SYS "ColourTrans_SetTextColour",
(B%<<24)+(G%<<16)+(R%<<8),,,128
```

where R%, B% and G% are the RGB values in the range 0-255. (COLOUR r,g,b uses this call with the final parameter set to 0 and not 128 to adjust the foreground colour.)

I guess the reason that this situation has arisen is that there is already a four-parameter version of COLOUR used to define the palette, and there was therefore no room to include a foreground/background toggle without confusing the poor interpreter.

The operation of the POINT function which reads the colour of a pixel at a given point on the screen has also been forced to change to allow for the new wider range of colours. In modes of up to 256 colours, it behaves as before, while in 32000 and 16 million colour modes, it returns 32 bits indicating the RGB value of the colour at that position. The meaning of these bits differs for the two colour ranges:

32000 colours

Bits 0-4	Red
Bits 5-9	Green
Bits 10-14	Blue
Bits 15-31	Reserved (set to 0)

16 million colours

Bits 0-7	Red
Bits 8-15	Green
Bits 16-23	Blue
Bits 24-31	Reserved (set to 0)

To show what all these colours can do, the program in listing 3 draws horizontal bars for the primary and secondary colours; red, green, blue, magenta, cyan, yellow and white, in 256 graduations from black to full intensity. This is only actually achievable in 16 million colour modes, although the use of ColourTrans by Basic ensures that in other modes the results are the best they can be. The program runs through 16, 256, 32000 and 16 million colour modes to demonstrate this point. Before running this, you should change into a 16 million colour 800 x 600 mode in the Desktop to ensure that there is enough free memory, because MODE will default to a lower colour depth and spoil the effect if it can't claim enough RAM. For those without a Risc PC, the result is shown in figure 1.

Listing 3

```
   10 REPEAT
   20 READ C$
   30 MODE "X800,Y600,C"+C$+",EX1,EY1"
   40 VDU 26:CLS:OFF
   50 FOR s=0 TO 255
   60 PROCblock(0,0,1,s)
   70 PROCblock(0,1,0,s)
   80 PROCblock(1,0,0,s)
   90 PROCblock(0,1,1,s)
  100 PROCblock(1,0,1,s)
  110 PROCblock(1,1,0,s)
  120 PROCblock(1,1,1,s)
  130 NEXT
  140 PRINT TAB(48,70)C$
  150 *FX15 1
  160 A=GET
  170 UNTIL C$="16M"
  180 END
  190 DATA 16,256,32K,16M
  200 :
  210 DEF PROCblock(r,g,b,s)
  220 GCOL r*s,g*s,b*s
  230 RECTANGLE FILL
s*6,150*(r*4+g*2+b),6,150
  240 ENDPROC
```

AutoStereograms

Convert simple screen pictures into stunning 3D images with this clever program from Derek Baron.

By now, there can't be many people who haven't seen the pictures and posters for sale consisting of seemingly random coloured dots (autostereograms), which when viewed in a particular way produce startling 3D images. The short program listed here enables you to produce your own multicoloured autostereograms for viewing either on the computer screen or as a printout.

Unlike our previous article on the subject, *Dots before your eyes* (RISC User 7:4) you don't need a special art package to make this work. You can easily create a simple picture for translation using either Paint or Draw, and then pass it through *3dConvert*, listed here, to generate the final image.

CREATING YOUR OWN STEREOGRAMS

To produce your own autostereograms with 3Dconvert you must first create a suitable Mode 12 sprite containing your original design. The conversion program will eventually use this to create a 3D image. When it does so, it will place all objects of the same colour at the same depth. If you are using the Desktop palette (as you would be if you were using Paint or Draw in Mode 12), all parts of your picture in white will end up furthest from the eye in the 3D representation. By contrast, those in light blue will end up nearest to you, while colours in between will appear at intermediate distances which depend on their relative position in the palette (as seen for example on the palette icon on the icon bar).

The most obvious approach is to work directly in Paint, or any other art package that lets you create mode 12 sprites. In each case you must remember to be in mode 12 when producing the sprite, and do not use other than the default Desktop palette. Create a new sprite window of 640 by 256 pixels. The largest horizontal size allowed by 3Dconvert is 1000 pixels. Click on the toggle-size icon to open up the window to its fullest extent. From the Paint menu click on *Show colours* and *Show tools*. Use a background colour of white, and produce a few bold shapes in different colours using the filled shapes from the toolbox. Try different colours and shades of grey, but don't use the strip about ninety pixels from the right-hand edge of the window. Finally, save your picture to disc.

HOW IT WORKS

Here is a brief description of the theory behind autostereograms. Figure 1 represents a viewer looking at two points on Objects A and B. The projection of these points as seen from each eye is seen on the paper. The two points produced on the paper as projections of the furthest Object A are more widely separated than two points projected from the nearer Object B.

The paper is filled with randomly coloured dots, but an algorithm is used to ensure that the two dots representing each eye's perceived position of A are separated by a fixed distance and are the same colour, and similarly for B except that the separation distance will be proportionally smaller. Provided the viewer can focus behind the paper, then slightly different images will be presented to each eye. The brain then fuses these images to give the three-dimensional impression.

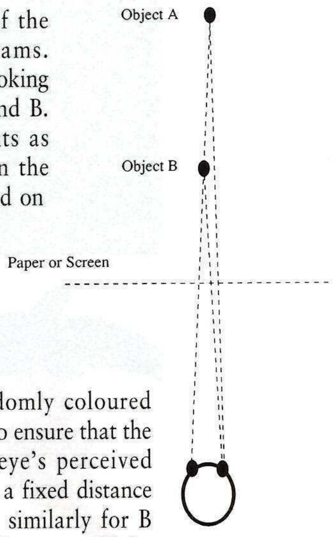
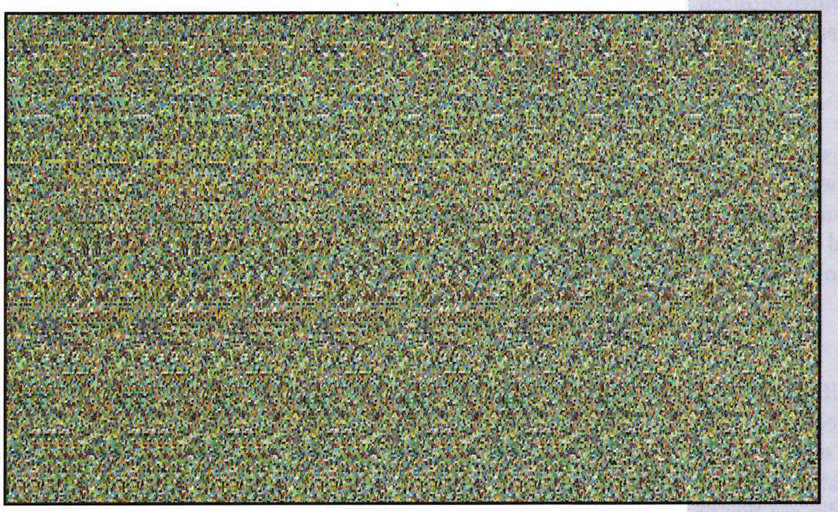


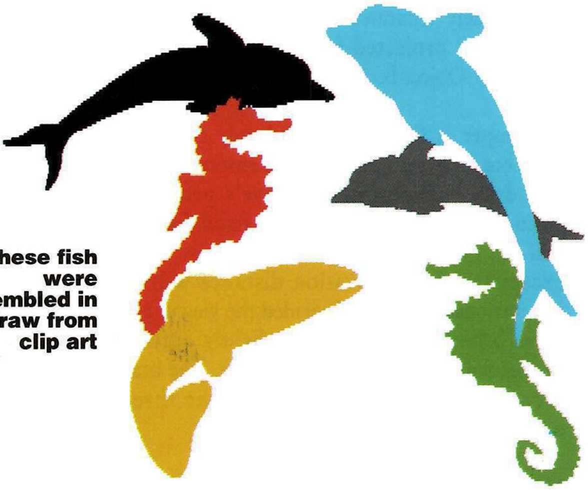
Figure 1

Note that practice is required to see these images. If you have a dominant eye or suffer from astigmatism you may not be successful. If you are near-sighted, remove your glasses; you should then find it easier than most to see the image. Another aid to viewing is to place the printed image behind glass and focus on your reflection.

An alternative approach is to use Draw to create the starting image. Proceed as with Paint, drawing fairly chunky objects in a variety of colours. When you have finished, you will need to take a snapshot of your drawing on the

Desktop in order to convert it to a sprite file (since Draw's save option would generate a Draw file, which 3DConvert cannot handle). But taking a snapshot is easy: just use Paint's screen grab facility by selecting *Snapshot* from its icon bar menu.





These fish were assembled in Draw from clip art

As a third alternative you might like to use a clip art sprite, but most clip art Sprites which appear suitable for conversion have not been produced in Mode 12, or if they have, the palette has been altered. To check on this, double-click on the sprite file to load it into Paint. Double-click on the sprite and use the Edit submenu of the sprite window menu to ensure that neither the Palette nor Mask options are ticked. Now choose *Show colours* from the Paint submenu. If the palette that appears does not have exactly 16 colours, then the file is not suitable for conversion. Otherwise, save the file and you are ready to begin.

PROGRAM NOTES

These notes apply to the accompanying listing.

The program first loads the sprite into memory at *start%*. This memory will be altered during the course of the program and re-saved as the output file, since it already contains the sprite file header information.

Line 160 reads some of this information which is required by the program, such as the horizontal and vertical dimensions in pixels (*horiz* and *lines*) along with the start position of the pixel data (*data*). Line 170 alters the sprite's name.

Each horizontal row of pixels is read one at a time by the loop in lines 190 to 270. The *like* array is first initialised to zeros. The next loop (lines 210 - 220) reads each pixel at a time as though this was seen by the left eye, and determines from its colour what distance in pixels the right eye will see the same spot on the image. If the pixel is white (colour 0) the base distance of 90 is returned, if the pixel is colour 'n' the distance returned is 90-n. The *like* array for this pixel is then set to this distance (provided that the *like* pixel is not past the right-hand edge), this will be used later to ensure these two pixels are the same colour. Note the complication in lines 340 - 350 due to the fact that 16 colour pixels are stored in 4 bits or two pixels in one byte - a flag is used to choose which pixel information to use.

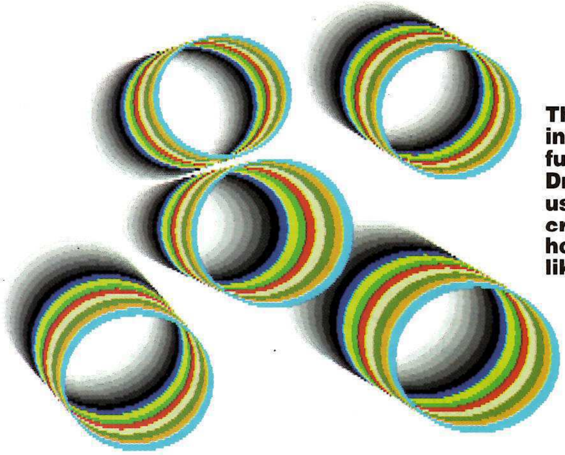
The next loop (lines 230-250) works from the right-hand edge, first setting all the pixels that were too close to the edge for a right eye image *like(x)=0* to random colours, but as the loop works further left the *like* array shows all the pixels will be like pixels to the right, and the program ensures that the *colour* array is set to be the same (*colour(x)=colour(like(x))*).

The last loop in the program overwrites the original pixel information with the new colours from the colour array. When all the horizontal lines have been processed, the sprite file is saved with the user-supplied output filename.

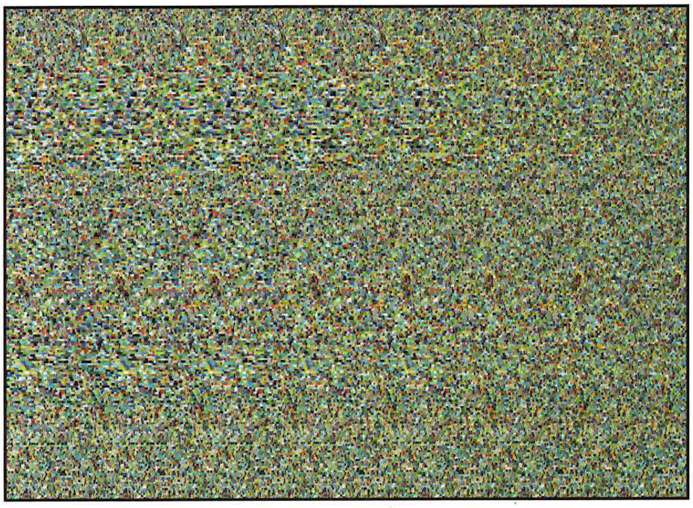
```
   10 REM Program   3DConvert
   20 REM Program   3D sprite creator
   30 REM Version   A2.0
   40 REM Author    D.N.Baron
   50 REM RISC User June 1994
   60 REM Program   Subject to
Copyright
   70 REM           Not Public Domain
   80
   90 DIM start%
&30000,like(1000),colour (1000)
  100 base=90
  110 REPEAT:INPUT"Full pathname for
Spr ite file to convert "infile$
  120 in%=OPENINinfile$:UNTILin%<>0
  130
len=EXT#in%:CLOSE#in%:IFlen>&30000
 PRINT"File too large":END
  140 OSCLI ("LOAD "+infile$+"
"+STR$~st art%)
  150 INPUT"Full pathname for Sprite
fil e to output "outfile$
  160
hor=(start%!28+1):horiz=8*hor:line
s=start%!32+1:data=&0C+start%!44+start
%: ptr%=data-1
  170
start%!16=&70736433:start%!20=&657
46972:start%!24=0
  180 SYS "Hourglass_On"
  190 FORy=0TOlines-1:flag%=0:SYS
"Hourg lass_Percentage",y*100/lines
  200 like()=0
  210 FORx=0TOhoriz-
1:dist=FN3D:IFx+dist <horiz
like(x)=x+dist
  220 NEXT
  230 FORx=horiz-1TO0 STEP-1
  240 IFlike(x)=0 colour(x)=RND(16)-1
EL SE colour(x)=colour(like(x))
  250 NEXT
  260 FORx=0TOhoriz-
2STEP2:?(data+y*4*ho
r+x/2)=colour(x)+16*colour(x+1):NEXT
  270 NEXT
  280 SYS "Hourglass_Off"
  290 OSCLI("SAVE "+outfile$+"
"+STR$~st art%+"+"+STR$~len)
  300 OSCLI("SETTYPE "+outfile$+"
```

CONVERSION

Once you have a sprite file ready to convert, you can use either the listing given in this article or the program on the magazine disc to do the transformation. If you do not have the disc, type in and run the listing. You will be prompted for full pathnames for the source sprite and the 3D sprite to be created. The program will then convert your sprite and save it automatically.



The interpolate function of Draw can be used to create hollow pipes like these



This dotscape, and the one on the previous page, can be used to demonstrate the principle. You should be able to see the shapes without too much difficulty (see RISC User 7:4)

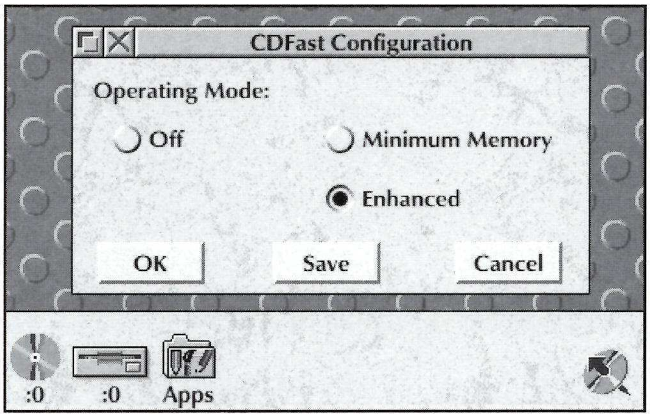
Otherwise, load the 3Dconvert program from the magazine disc and drag the file onto its icon on the icon bar. A save window will appear, allowing you to save the file to a directory viewer of your choice. Expect to wait about seventy five seconds on an ARM 3 for conversion to take place (more with an ARM 2 or 250, less with an ARM 610).

To view the image on screen - where best effects are to be had - simply load it into Paint. Alternatively you can also get good effects from a monochrome hardcopy by dragging the sprite to your printer driver.

CDFast

Richard Hallas tests out a performance enhancement utility for CD-ROM drives.

CD-ROM is an inherently slow storage medium. Even the double-speed drives which are now commonly available seem very sluggish when compared with most hard discs. Any performance increase which can be gained, therefore, is very welcome. The new utility, CDFast, from Eesox claims to increase the performance of most CD-ROM applications significantly by using intelligent data cacheing techniques.


CDFast Configuration

Operating Mode:

○ Off ○ Minimum Memory

● Enhanced

Configuring CDFast

Timing comparisons in seconds showing percentage improvements resulting from CDFast

CD-ROM Title	Test	Off	CDFAST MODE Minimum		Enhanced	
		Time	Time	%Inc	Time	%Inc
PhotoBase ˙ Landscapes	Search: ˜Huddersfield¯	13	12	8%	12	8%
ArtWorks ClipArt CD 1	Search ˜Gaddesden¯	1*	1*	20%	1	50%
Tekkie Disc	Search ˜Wimp_GetIconState¯	448	142	315%	139	322%
Tekkie Disc	Search ˜BFont characters¯	750	243	308%	240	313%
Acorn Replay Clips 1	Open root directory	4*	4*	5%	4*	5%
Acorn Replay Clips 1	Copy 10Mb ıAccident* file	60	70	*16%	70	*16%

THE PACKAGE

CDFast comes on a single floppy disc in a good quality plastic wallet with an extremely brief but clear user guide. The brevity of the guide, which includes some performance figures, is a good indication of the simplicity of use of the software.

IN USE

All you have to do to load CDFast is to open the disc directory containing it, and the software announces itself with a banner detailing the mode it is configured to use. The utility itself takes the form of a small relocatable module housed in a configuration application. There are three possible modes: 'Off', 'Minimum Memory' and 'Enhanced'. 'Enhanced' is the default mode, using 36K of memory, whilst 'Minimum Memory' is supposed to give almost as good a performance using only 8K of memory. Running the CDFast application lets you choose which mode to use and saves the choice to disc, but there is no need to run this application other than to change the setting: the small module itself is all you need.

DOES IT WORK?

The performance figures quoted by Eesox concern five tests, ranging from opening a root directory to performing a complex search. The results, taken on average, suggest a speed increase of around 25% for minimum mode, and 35% for enhanced mode.

I tested CDFast on a variety of CD-ROM applications using my Cumana SLCD interface and 300-series drive. Overall, there was indeed a feeling of speedier accessing, although the extent of the speed-up was difficult to ascertain. The main problem was finding a CD-ROM application which took control for a significant amount of time. CD-Fast can only increase disc accessing speed, of course, not the processing speed of the computer; and the point about most well-written CD-ROM software is that it performs as little searching through disc files on the CD-ROM as possible, preferring to search through index files in memory, precisely because CD accessing is so slow.

Most of the CD-ROMs I possess only spend brief amounts of time accessing the disc, so the search times are brief and difficult to measure. However, the one exception to this is the Tekkie Disc (see review in RISC User 7:4), which has extremely slow search routines and spends a great deal of time accessing the disc (if you are not using its Quick Index feature). I performed two tests using this software, involving searches which took up to 12* minutes without CDFast; with CDFast in operation, the performance increases were striking and very worthwhile. I would also have expected very disc-intensive activities, such as the copying of large files, to be significantly faster; however, I found that copying a 10Mb file was actually slower with CDFast running than without it.

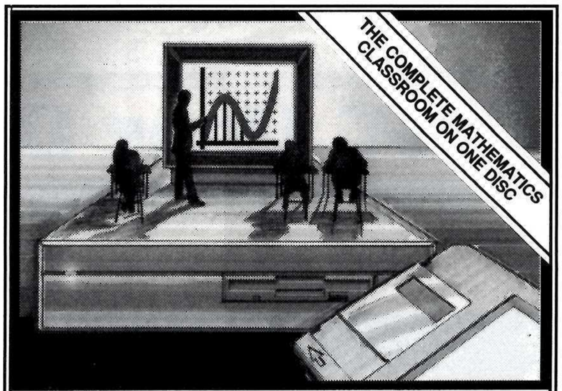
CONCLUSIONS

When I heard about this software I was highly sceptical, but the huge performance increases with respect to the Tekkie Disc have convinced me that it does work, and a slight speed-up can be noticed with most applications (in fact, with a pre-release copy of the Tekkie Disc software, the speed increase was in excess of 500%!) However, I was very surprised at the loss in speed when copying a large file.

Whether you consider CDFast worth buying really depends on the CD-ROM applications you use. If you do a lot of searching on CD-ROM, then it will almost certainly be a worthwhile purchase; but the overall performance increase will depend a lot on the model of CD-ROM drive and computer you are using, and the CD-ROMs themselves.

PRODUCT INFO

Product	*CDFast*
Supplier	*Eesox,* *5 Hillfield Road,* *Comberton,* *Cambridge* *CB3 7DB* *Tel. 0223 264242*
Price	*£25.00 ex. VAT*



THE COMPLETE MATHEMATICS CLASSROOM ON ONE DISC

Autograph

Interactive programs for teaching mathematics

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GRAPH PLOTTER ♦ GRAPHIC CALCULATOR
ALGEBRA ♦ TRIGONOMETRY
TRANSFORMATIONS ♦ SEQUENCES

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HISTOGRAMS ♦ TIME SERIES ♦ SCATTER
VARIATION ♦ 2-DICE ♦ BINOMIAL / POISSON
CENTRAL LIMIT THEOREM

Setting new standards in true-notation implicit inputs (conics, 1st/2nd differential equations) with screen displays, animations and simulations based on sound educational principles.
Runs on all Acorn computers

THE CLASSROOM SOLUTION

○ *Autograph* is now in use in a growing number of schools in the UK and Australia, as a classroom teaching aid, offering a truly interactive electronic extension to the white board.

○ A high-speed Acorn computer to connect into your classroom TV can cost as little as £339, and a full range of TV splitter cables is available. *Autograph* costs £90, including a 400-page manual (Site Licence: £180).

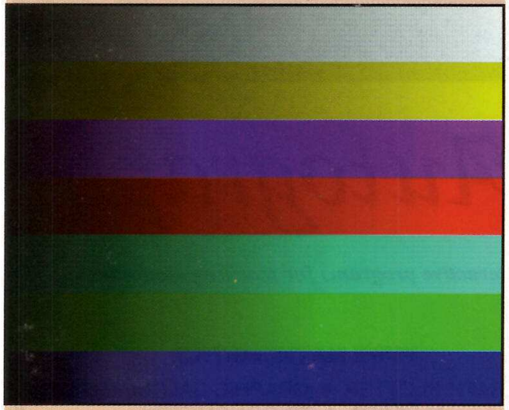
Further details *(requisition orders accepted):*

EASTMOND PUBLISHING Ltd,
33 West Street, Oundle,
Peterborough PE8 4EJ, UK

Tel: 0832-273444 ***Fax:.*** 0832-272760
Contact: Douglas Butler

RISC User Disc June 1994

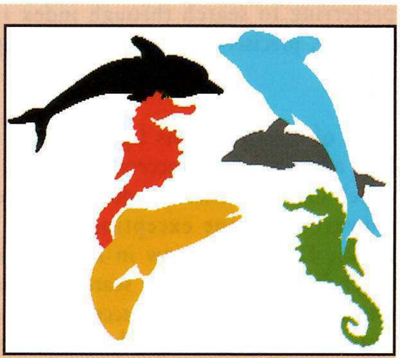
Risc PC Programs



Check out your Risc PC's amazing colour potential with our test program, which compares graduated colour bars in 16, 256, 32000 and 16.7 million colour modes. Plus two handy procedures to save the current Desktop mode when running single-tasking programs, and to restore it when your program terminates.

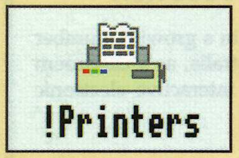
3D-Convert

A multi-tasking Desktop program to convert simple sprites into stunning 3D images - and you don't need red and green glasses to view them with.



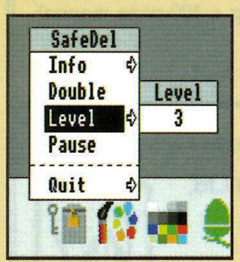
BONUS ITEMS

New Printers



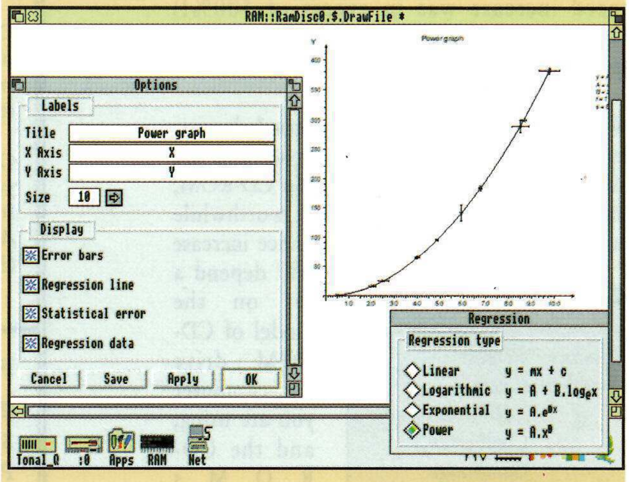
The complete set of printer description files for Acorn's RISC OS 3.1 Printers upgrade supplied last month.

Safe Delete



Fed up with losing programs and data files? Let Safe Delete come to your rescue. It works like an invisible dustbin, retaining copies of deleted files, regardless of whether they have been deleted using the Filer menu Delete option, or have been deleted by other means. To retrieve your file, just look in the special nominated directory. This powerful module provides a number of user options.

Graphix

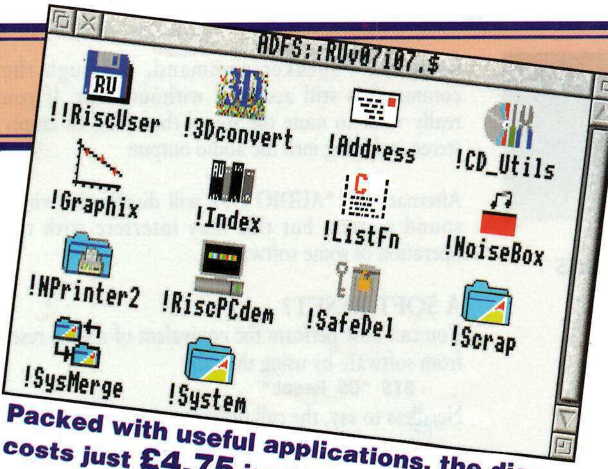


Labels
Title: Power graph
X Axis: X
Y Axis: Y
Size: 10

Display
☒ Error bars
☒ Regression line
☒ Statistical error
☒ Regression data

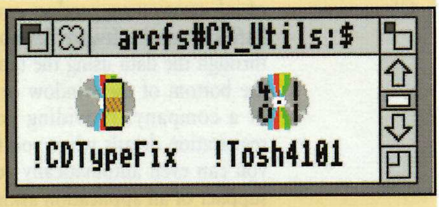
Regression type
◇ Linear $y = mx + c$
◇ Logarithmic $y = A + B.\log_e X$
◇ Exponential $y = A.e^{Bx}$
◆ Power $y = A.x^B$

Display your experimental data on the Desktop with this very handy graphics package. It automatically scales the axes, and allows you to add your own labels. Better still, it will even work out the line of best fit, and can display this with error bars.



Packed with useful applications, the disc costs just £4.75 inc VAT. (Please add £1 p&p)

CD-Utils

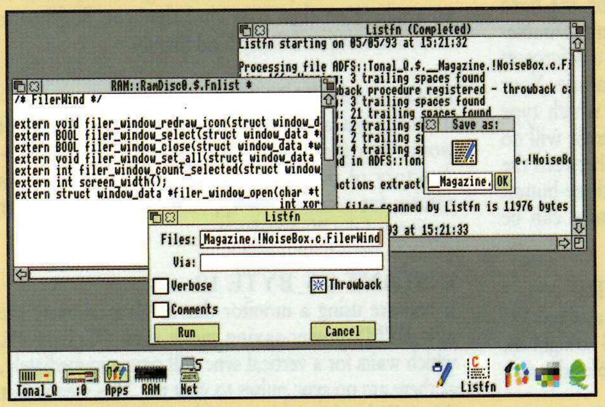


⇨ Two utilities for CD-ROM users.

CDTypeFix extends the powerful DOSMAP command from the DOS filing system to CDFS. It enables you to specify the automatic conversion of PC file extensions to Archimedes filetypes. This means that your CD full of GIF files will no longer appear as a set of DATA files, but can have the correct Archimedes filetype for GIF files etc. This software is compatible with CDFS versions 2.10 and 2.20.

Tosh 4101 is a utility to persuade the CDFS to work with the Toshiba 4101 CD-ROM drive.

C Function Lister ⇩



```
Listfn starting on 05/05/93 at 15:21:32

Processing file ADFS::Tonal_Q.$.__Magazine.!NoiseBox.c.Fi
                : 3 trailing spaces found
   back procedure registered - throwback ca
                : 3 trailing spaces found
                : 21 trailing spaces found
                : 2 trailing s
                : 2 trailing s
                : 4 trailing s
               d in ADFS::Tona                  e.!NoiseBo

               ctions extract

               files scanned by Listfn is 11976 bytes

               93 at 15:21:33
```

```
/* FilerWind */

extern void filer_window_redraw_icon(struct window_d
extern BOOL filer_window_select(struct window_data *
extern BOOL filer_window_close(struct window_data *w
extern void filer_window_set_all(struct window_data
extern int filer_window_count_selected(struct window_
extern int screen_width();
extern struct window_data *filer_window_open(char *t
                                             int xor
```

Files: _Magazine.!NoiseBox.c.FilerWind

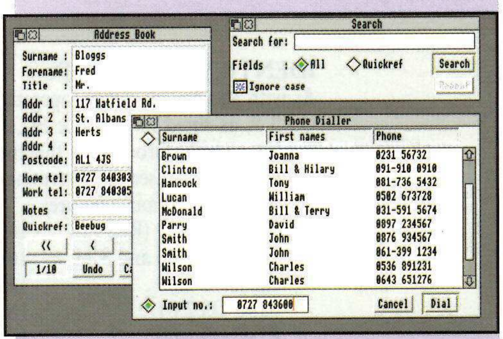
Via:

☐ Verbose ☐ Comments ☒ Throwback

This cunning program scans your C source files, extracting the names of all functions, and saving them to disc. This can then be used for reference or documentation - but better still it is in exactly the right form to be used as a header of function prototype declarations. As a bonus it also warns of redundant spaces, and mismatched curly brackets, and can generate throwback when these errors are encountered.

ADDITIONAL ITEMS DESCRIBED IN THE MAGAZINE

The RISC User Address Book ⇩



Surname : Bloggs
Forename: Fred
Title : Mr.
Addr 1 : 117 Hatfield Rd.
Addr 2 : St. Albans
Addr 3 : Herts
Addr 4 :
Postcode: AL1 4JS
Home tel: 0727 840303
Work tel: 0727 840305
Notes :
Quickref: Beebug

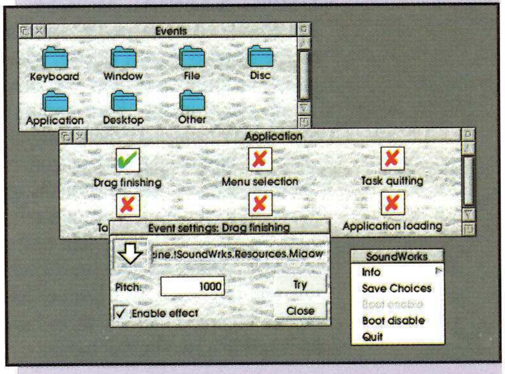
Search for:
Fields : ● All ○ Quickref
☒ Ignore case

Surname	First names	Phone
Brown	Joanna	0231 56732
Clinton	Bill & Hilary	091-910 0910
Hancock	Tony	081-736 5432
Lucan	William	0502 673728
McDonald	Bill & Terry	031-591 5674
Parry	David	0897 234567
Smith	John	0876 934567
Smith	John	061-399 1234
Wilson	Charles	0536 891231
Wilson	Charles	0643 651276

● Input no.: 0727 843600

An extremely comprehensive Desktop address book which not only allows quick and easy access to each entry, but will even dial a phone number for you. Provides extensive searching and printing facilities.

NoiseBox ⇩



ine.!SoundWrks.Resources.Miaow
Pitch: 1000
✓ Enable effect

Liven up your working environment with a few Desktop sounds. You can assign sounds to over thirty different actions - why not open an application with a 'bang'? And just so you can get started we are offering you a selection of some sample sounds.

ArcScan Data ⇨

ArcScan Indexes for this month's RISC User.

RISC PC Hints and Tips

David Spencer presents a round-up of hints and tips for the new Risc PC.

IDENTIFYING A Risc Pc

As with all previous Acorn operating systems, RISC OS 3.5, as fitted to the Risc PC, returns a unique version number through the function INKEY(-256), and this can be used to determine the OS version. The values for various OSs are:

RISC OS 3.50 (Risc PC)	165
RISC OS 3.10 and 3.11	164
RISC OS 3.00	163
RISC OS 2.01	162
RISC OS 2.00	161
Arthur 1.20	160

For applications that can only run on the new operating system, it is best to include a check in the !Run file of the form:

```
     RMEnsure UtilityModule 3.50 Error
This is not a Risc PC
```

which will stop with an error if the operating system is too old.

USING A SERIAL MOUSE

The Risc PC can use any PC serial mouse in addition to the normal Acorn device. Having plugged the mouse into the serial port you need to configure it. To do this, run the !Boot application on the hard disc which brings up the configure menu. Double-click on 'Mouse' and choose from either a Microsoft serial mouse or a Mouse Systems serial mouse. Your mouse documentation should tell you which type your mouse is, or failing that, trial and error will do no harm. (Some PC mice are switchable between the two types.) Obviously it helps to have a three-button mouse (again, some PC three-button mice can be switched to a two-button mode).

USING A DIFFERENT KEYBOARD

Similarly, the Risc PC can use any standard PC keyboard. PS/2 type units can be plugged straight in, while the more normal AT type needs a cable adaptor.

On the subject of keyboards, if you *Unplug the Keyboard module then only a Delete Power-on (which thankfully still works) or similar can recover control.

NO QUIET SPELLS

In common with the ARM250 machines, the internal speaker on the Risc PC cannot be muted using the *Speaker command, although the command is still accepted without error. If you really want to mute the sound then plug an empty stereo jack plug into the audio output.

Alternatively, *AUDIO OFF will disable the whole sound system, but this may interfere with the operation of some software.

A SOFT RESET?

You can now perform the equivalent of a hard reset from software by using the call:

```
     SYS "OS_Reset"
```

Needless to say, the call doesn't return!

USING !Products

As supplied, the Risc PC hard disc includes an application called !Products which stores a wealth of information on product compatibility from most hardware and software developers. You can browse through the data using the tape recorder controls at the bottom of the window or search for a product or a company. Providing you have filled in the registration details when you first run the program, you can even automatically generate a letter to the supplier of an application asking for an update.

DUMMY MODULES

RISC OS 3.5 includes dummy versions of the modules:

NetUtils
IRQUtils
GameModes
WindowUtils

These all have version numbers higher than those of the real modules of the same names that were needed with older operating systems. This stops applications loading the older forms that are no longer needed. It also means that if you are including these modules in an application then it is vital that you RMEnsure them and not just blindly load them.

PROGRAM PATCHES

If you've got a commercial application that doesn't work, then it's worth looking in the 'Patches' sub-directory of the 'Utilities' directory. This contains patches for a number of applications, including older versions of the PC Emulator.

INSTANT OS_BYTE 19

If you are using a monitor that is blanked using the new DPMS power-saving mode then OS_Byte 19, which waits for a vertical sync will return immediately, as there are no sync pulses to wait for. This means that this call should not be used for general timing, but only for synchronising screen updates.

DISC NAME MATCHING

There seems to be a bug in the algorithm that detects duplicate discs, in that if you are copying between two discs that have names that don't differ in the first eight characters then each time you open one the other will be closed.

INCOMPATIBLE APPLICATIONS

If you come across an application that doesn't work properly on RISC OS 3.5, especially if it experiences redraw problems, then try running it in a 16 or 256 colour screen mode. Several applications fail on the new colour modes but will work quite happily on the older modes.

FINDING THE DESKTOP FONT

If plotting text directly into a window, you should match the font that the Desktop is using. The call:

```
SYS "Wimp_ReadSysInfo",8 TO A%,B%
```

will return in A% the handle of the current Desktop font, and in B% the handle of the font that contains the Wimp symbols (tick, cross etc.). These handles can then be passed to the Font Manager plotting calls.

Alternatively, window redraw code can plot text in the Desktop font using the call:

```
SYS "Wimp_TextOp",2,text$,-1,-1,x,y
```

which plots the text in text$ at the position (x,y). If &80000000 is added to the 2 then the text is right justified to the given position, and adding &40000000 will vertically justify it so that the baseline aligns with system font text.
The related call:

```
SYS "Wimp_TextOp",1,text$,n TO A%
```

will return in A% the width (in OS units) needed to plot the first n characters of the specified string.

UNDITHERED DRAGGING

By default, sprites dragged around the Desktop are dithered to make them transparent. However, by setting bit 8 of the flags in register R0 on calling SWI "DragASprite_Start", a non-dithered solid drag is selected. This could be used by applications to make the sprite stand out more.

KEEPING A WATCHFUL EYE

RISC OS 3.5 includes a Watchdog invoked by pressing Alt-Break. This pops up a window allowing applications that are threatening to crash the machine to be stopped. You can step through each task in turn and cancel one if required. This is particularly handy when an error occurs in redraw code, resulting in persistent errors.

Sneaky software can turn the Watchdog off by using:

```
SYS "Wimp_SetWatchdogState",0,codeword
```

and on using:

```
SYS "Wimp_SetWatchdogState",1,codeword
```

The codeword can be any value but the same one must be used for on as was used for off. These calls would typically be used by screen blankers and the like.

Original Outline Fonts from RISC User

Each disc contains ten high quality outline fonts in a variety of different faces. Each disc also contains a number of applications for further processing and manipulation of outline fonts. The fonts and applications are supplied on a single disc with a comprehensive menu system making everything very easy to use.

FONTS DISC 1
Font disc 1 also includes Acorn's Outline Font Manager plus the following applications:
ShowFonts - displays or prints outline fonts
DrawFont - converts outline fonts for use in Draw
FontSwap - allows font substitution
FontCtrl - allows easy tuning of font configuration
FontRead - downloads font definitions to PostScript printers

FONTS DISC 2
FONTS DISC 3
Both Fonts Discs 2 and 3 contain the following additional applications:
FontSpace - allows change of character spacing
Kerner - allows you to kern text (RISC OS 3)
ShowFonts - displays or prints outline fonts for reference
Ligature - allows easy incorporation of ligatures, smart quotes and dashes in your text (RISC OS 3 only)

PFD1a	**Fonts Disc 1**	**10.17 ex. VAT**
PFD2a	**Fonts Disc 2**	**10.17 ex. VAT**
PFD3a	**Fonts Disc 3**	**10.17 ex. VAT**

Please add £ 1.00 p&p.

Atlantis
Austin
Blacklet
Chancellor
Classroom
Gangster
Italian
Mercury
MILITARY
Wessex

RISC USER FONTS DISC 1

Buick
EXTREMITY
Hudson
JOPPA
Marti
NEWTOWN
OLDTOWN
Salisbury
SLAB
Rob_Roy

RISC USER FONTS DISC 2

Citril
Crikey
Curtis
DYNAMIC
JamJar
JungleDrum
MiLLiGAN
STCUTHBERT
Waverly
SELLERS

RISC USER FONTS DISC 3

SAVE £5! BUY ALL THREE FONTS DISCS FOR JUST £25.51 EX VAT (CODE PFDA).

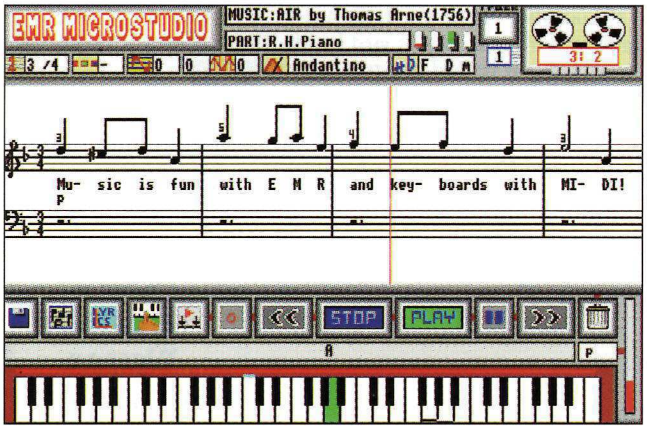
RISC Developments Ltd., 117 Hatfield Road, St Albans, Herts AL1 4JS Tel: 0727 843600 Fax: 0727 860263

Education: Face the Music!

by Chris Drage

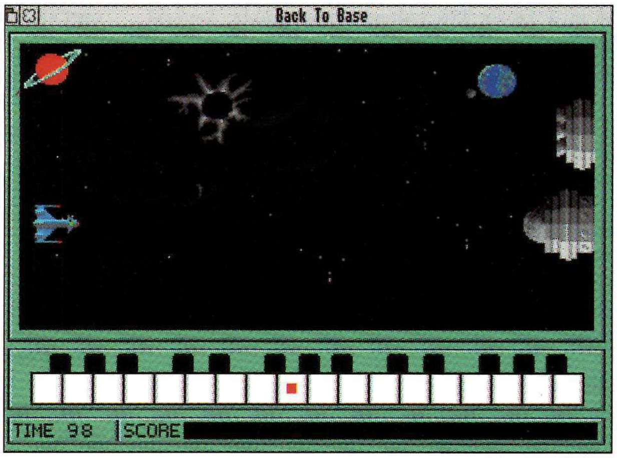
Music should be an integral part of any child's education, and there is a wealth of music softwareavailable for the Arc to suit all ages. In this month's feature we'll take a look at the best of what's available, for use at home or in the school.

Music Box (Topologika) is a super little program which provides children with opportunities for musical composition, and it was while reviewing this program for RISC User (7:6) that I was motivated to investigate music software further. After all, the integration of I.T. and music must be one of the least exploited uses of computers in schools, or at home for that matter. I suspect the problem is a preconception that in order to use music software you have to be an accomplished musician and very computer literate to boot. In fact the opposite is true.


EMR MICROSTUDIO
MUSIC:AIR by Thomas Arne(1756)
PART:R.H.Piano
3 /4
Andantino
F D m
1
3: 2
Mu- sic is fun with E M R and key- boards with MI- DI!
STOP
PLAY
A
P

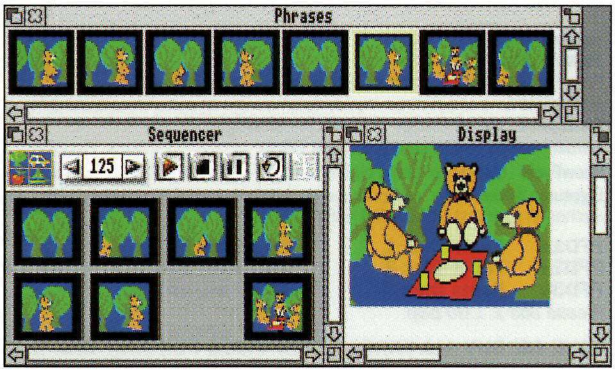
MicroStudio from EMR

To start with, you can begin composing and creating music with little or no expertise using nothing more than an Archimedes and software like *Music Box*, *Compose World*, *Song Book* or *RhythmBox 3*. Obviously you do need to be able to load and save files and use a mouse reasonably well. Do you need a musical keyboard? Well, initially no, but as you become more confident the need to connect a keyboard becomes clearly apparent. Don't forget, if you are reading this, then you already have access to a musical instrument: viz your own Arc!

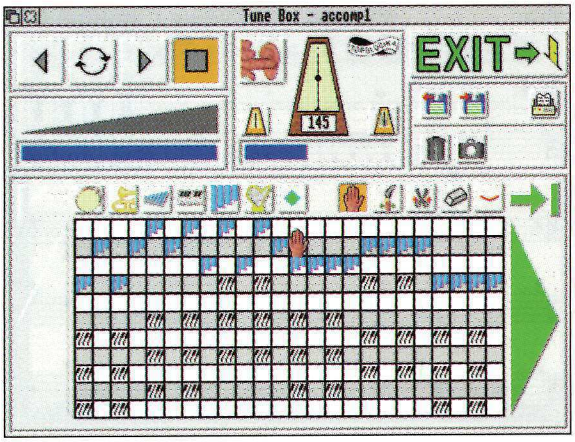


Keyboard trainer from Minerva software

With its built-in voices and sound capabilities, the Archimedes computer is begging software exploitation - you already have Maestro as part of the accompanying applications, and to start with it is worth experimenting with this. Output can be via the internal speaker (poor) or via the monitor's speaker (hardly ideal) or via a pair of amplified speakers (£60 - £200) which are very acceptable. Software like E.S.P.'s *Voice Pack1* can add new and interesting voices to the computer's existing set, and helps provide considerable variety.

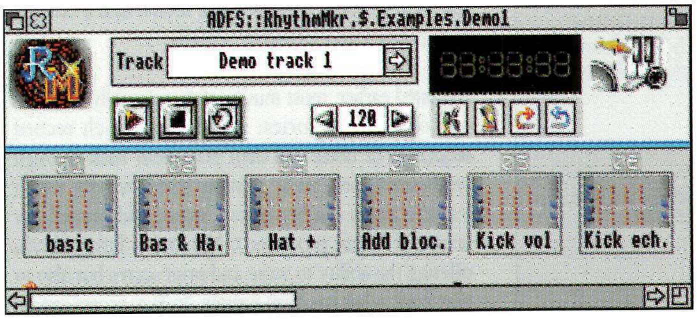


Compose Word from ESP



MusicBox from Topologika

Essentially, there are two types of music software available: composition and score writing programs, and those which enable children to manipulate musical sounds and rhythms and to construct and edit simple compositions without demanding they learn or read notation. *Compose World* is an excellent example of the latter type as it does not require any form of notation but instead represents notes or musical phrases with graphic pictures and/or words. The range of prepared musical phrases available with *Compose World* and *Compose World Files 1* admirably illustrates the educational potential of this little gem of a program. An enormous range of compositions can be created by simply dragging and dropping pictures in a sequence - even repeating phrases where necessary. Music without a note in sight! Simple prepared tunes can be 'played' once their component pictures are assembled in the correct order - visual clues helping in the process. If a MIDI instrument is available you can play any music from Compose World in any of its available voices. For pre-notational musical experiences *Compose World* together with *Music Box* cannot really be beaten.

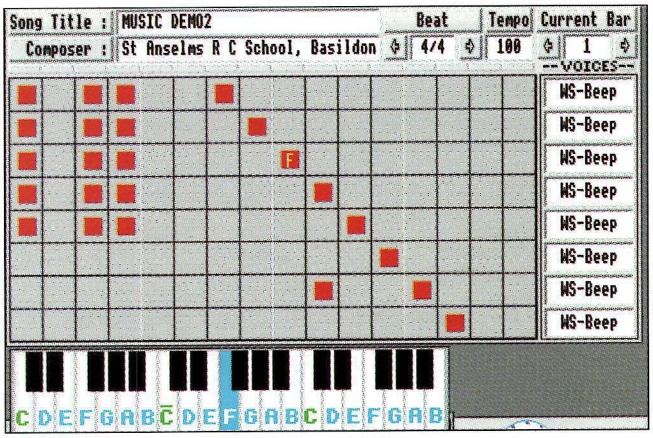

ADFS::RhythmMkr.$.Examples.Demo1

Track: Demo track 1

120

Rhythm Maker from ESP

The next step requires a degree of financial commitment - the addition of a keyboard (like an electric piano) and MIDI interface with sound sampler, both of which will transform your computer music-making experiences. Without the space to go into detail here, suffice to say that 'Midi Micros and Music' from EMR is recommended reading, while the HCCS Midi card/sound sampler is recommended hardware - cost-effective, robust and easy to fit to their Ultimate Expansion System. The sampler, incidentally, coupled with a suitable microphone or other sound source (HiFi or tape recorder), will provide a range of digitised sound samples which can be mixed with music in the computer. With MIDI (a well established industry standard) there is no limit as to the number of MIDI instruments you can connect.


Song Title : MUSIC DEMO2

Composer : St Anselms R C School, Basildon

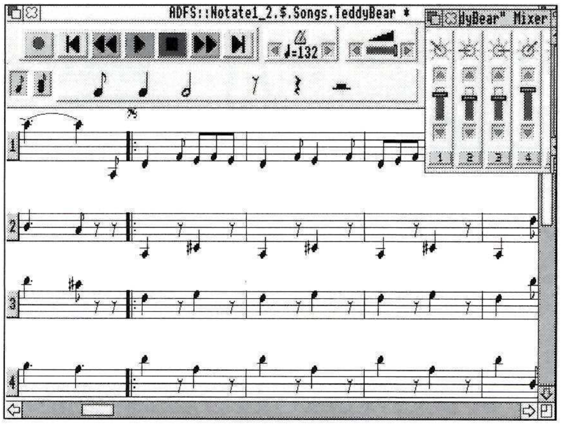
Beat: 4/4

Tempo: 100

Current Bar: 1

Rhythm Box3 from EMR

To learn how to play the keyboard, Minerva's *Keyboard Trainer* provides a graded series of 62 on-screen lessons which makes learning music very enjoyable. It is specifically designed for use with MIDI keyboards, and probably offers the most interesting means of learning to read music and play a keyboard to date. Keyboard Trainer lessons divide into three types: study lessons, games, and tunes. The lessons are often very short, often only imparting a single piece of information, and feature note playing and rhythm exercises. The games also contribute to the overall enjoyment, as does the multi-timbral factor - the ability to play more than one sound at a time. The games are graphical, animated and include heavily disguised traditional five-finger exercises. Another useful aid is to see the keys on the screen representation of the keyboard being depressed as you play a key. I suspect many beginners will gain improved access to music reading and omposition via Keyboard Trainer, but beware, as you will also need supplementary practice materials.



Notate from Longman Logotron

The *Micro Studio* is a unique three-in-one program for the teaching and learning of keyboard music, the creation, editing and printing of music, all with an easy to use 24-track recording facility for use with any MIDI keyboard. What is novel about *Micro Studio* is that music notation appears automatically on the screen as you play, yet basic music skills are not required in order to create quite sophisticated multi-track sounds. The program is RISC OS co-existent (i.e. not a Desktop program itself, but runnable from the Desktop), but somehow it does not seem to matter. Once you become familiar with *Micro Studio*'s modus operandi it soon becomes second nature. Music can be composed by playing parts on a keyboard or by inserting notes onto the stave using the mouse, with computer sampled sounds added too for special effects. Two features I particularly like are the learn mode, in which the music waits for you as you play any selected part of a score, while you follow the music and use the keyboard guide, and the fact that teachers or parents can purchase pre-recorded music discs from EMR suitable for different learners' abilities. *Micro Studio* has a great deal in its favour and should find a niche in both primary and secondary schools.

PRODUCT INFO

Ultimate Expansion System *is available from H.C.C.S. Associates Ltd,*
575-583 Durham Road, Gateshead,
Tyne & Wear NE9 5JJ, tel. 091 487 0760.

Prices:	*A3020/400 Midi Starter kit*	*£109.00*
	A5000 Midi Starter kit	*£89.00*
	MultiPodule	*£38.00*
	Midi Micropodule	*£49.00*
	Midi & HQ Sampler Micropodule	*£69.00*

Music Box *is available from Topologika Software, P O Box 39, Stilton,*
Cambs. PE7 3RL, tel. 0733 244682.
Price: £35.00, £60.00 (Primary Site Licence), £70.00 (Secondary Site Licence)
£105.00 (Teacher Training Site Licence)

Keyboard Trainer *is available from Minerva Software, Minerva House,*
Baring Crescent, Exeter, Devon EX1 1TL, tel. 0392 437756.
Price: £69.95 ex. VAT

Compose World, Voice Pack 1, Rythmn Maker, Compose World Files 1 *are available from Expressive Software Projects, Holly Tree Cottage,*
Main Street, Strelley Village, Nottingham NG8 6PD, tel. 0602 295019.

Prices:	*Compose World*	*£48.00*
	Voice Pack 1	*£15.00*
	Rhythm Maker	*£34.00*
	Compose World Files 1	*£12.00*

Mr. Sound, Micro Studio, Rhythm Box 3, and Songbook *are available*
from EMR Ltd, 14 Mount Close, Wickford, Essex SS11 8HG,
tel. 0702 335747.

Prices:	*Mr.Sound*	*£34.00*
	Micro Studio	*£67.23*
	Rhythm Box 3	*£34.00*
	Songbook	*£24.95*

Notate *is available from Longman Logotron, 124 Cambridge Science*
Park, Milton Road, Cambridge CB4 4ZS, tel. 0223 425558.
Price: £59.00

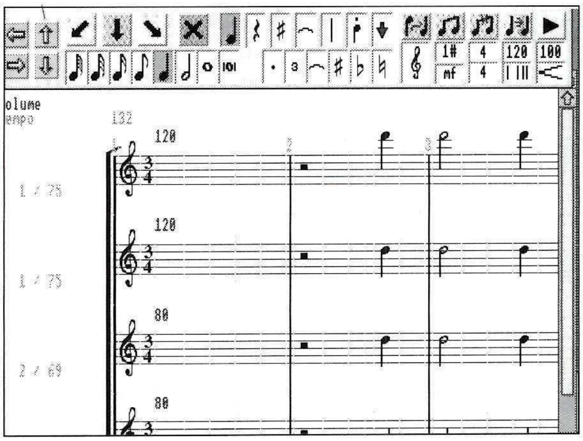
Rhapsody 3 *is available from Clares, 98 Middlewich Road, Northwich,*
Cheshire CW9 7DA, tel. 0606 48511.
Price: £85.06

Sibelius *is available from Sibelius Software, 4 Bailey Mews,*
Auckland Road, Cambridge CB5 8DR, tel. 0223 302765.

Price:	*Sibelius 6*	*£160.00*
	Sibelius 7	*£485.00*

(All prices exclude VAT)

As stated earlier, most music software usually falls into one of two categories: sequencers which record sequences of notes and then play them back through synthesizers, and music printing software with which musical scores can be written, stored and printed out (a sort of 'music processor'). *Notate* is a little of both, offering the ability to write and print scores but also to play back what has been written. In fact, scores can be as simple as a single melody line, or up to eight different parts. There are many example tunes and a large number of voices like drum beats, saxophones, clarinets etc. The program can export and import MIDI Format One files, and has the ability to play via a MIDI keyboard. Unfortunately, it cannot accept notes from a keyboard. Though it makes use of conventional music notation, Notate is eminently suitable for musicians at all levels of musical ability, from youngsters experimenting for the first time, to those who need a powerful tool for composing and printing scores.



Rhapsody 3 from Clares

Rhapsody and its satellite software has long been recognised as one of the best, all round, value-for-money score writing programs for the Arc, and this is reaffirmed by its third evolution. *Rhapsody 3* now includes almost all the enhancements and alterations asked for by its aficionados, and should continue to find a niche in secondary schools as well as at home. To get the most out of this comprehensive score writing program though, you should seriously consider purchasing Clares' *Voxbox* suite of programs for sound editing and synthesis, and *ScoreDraw* for high quality printed output.

Finally, for music teachers who need to produce multi-part scores in a truly professional manner, there is one program that is really head and shoulders above the rest: *Sibelius 7*. It knows the rules not only of notation but of music spacing and layout, and for the non-technical music teacher who is preparing the school orchestra for an end of year concert, *Sibelius 7* really is a must.

If this article has encouraged you to have a go at using your computer for music, then I will have succeeded. No matter where you start, essentially all musical activity requires involvement before skill. Whether it's dragging and dropping *Compose World* pictures to create a little masterpiece, or using a keyboard to create two or more tracks, and experimenting with them in *Micro Studio*, one thing is assured: it really is fun and far less daunting than you ever imagined!

If YOU are thinking seriously about

STATISTICS

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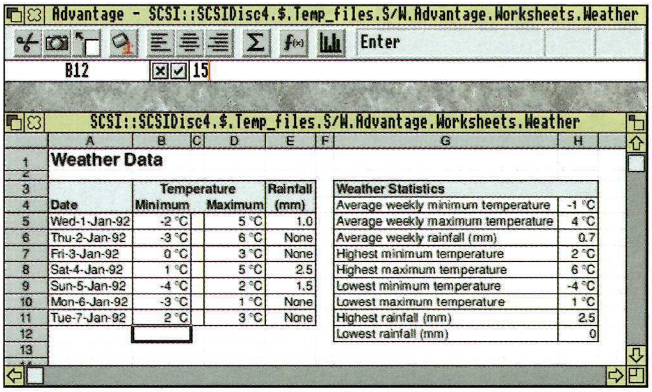
The Advantage of Spreadsheets

Mark Sealey looks with enthusiasm at a spreadsheet aimed squarely at the educational market, Longman Logotron's Advantage.

Advantage is the new spreadsheet from Longman Logotron. It has been designed to allow pupils (typically in key stages two, three and four) to concentrate on the relevant mathematics - not the particularities of the software that they are using.


Advantage - SCSI::SCSIDisc4.$.Temp_files.S/W.Advantage.Worksheets.Weather
Enter
SCSI::SCSIDisc4.$.Temp_files.S/W.Advantage.Worksheets.Weather

B12 ☒ ☑ 15

Weather Data

Date	Temperature Minimum	Temperature Maximum	Rainfall (mm)
Wed-1-Jan-92	-2 °C	5 °C	1.0
Thu-2-Jan-92	-3 °C	6 °C	None
Fri-3-Jan-92	0 °C	3 °C	None
Sat-4-Jan-92	1 °C	5 °C	2.5
Sun-5-Jan-92	-4 °C	2 °C	1.5
Mon-6-Jan-92	-3 °C	1 °C	None
Tue-7-Jan-92	2 °C	3 °C	None

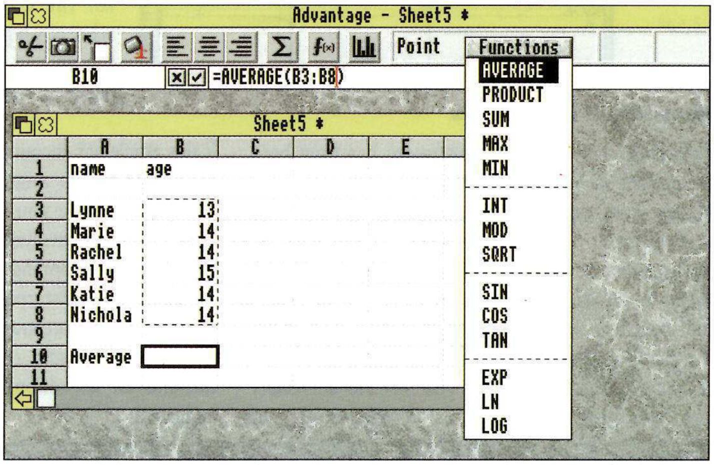
Weather Statistics	
Average weekly minimum temperature	-1 °C
Average weekly maximum temperature	4 °C
Average weekly rainfall (mm)	0.7
Highest minimum temperature	2 °C
Highest maximum temperature	6 °C
Lowest minimum temperature	-4 °C
Lowest maximum temperature	1 °C
Highest rainfall (mm)	2.5
Lowest rainfall (mm)	0

Figure 1. The two-window approach of Advantage.

There are now several contenders for ıheavy duty* spreadsheet work, Pipedream 4, Resultz and Fireworkz (Colton), Schema 2 (Clares), the relevant module in Advance (Acorn) and Longman Logotron's own Eureka, on which Advantage is obviously based (see the comparative survey in RISC User 7:6). Although the largest Advantage sheet can be 16,384 rows deep by just 256 columns wide, most schools should find this enough!

Much thought has gone into the way that the user interacts with Advantage. It is assumed that they will want mainly to process data and display it in basic chart forms, crunch numbers (albeit fairly modestly) and ask those all-important ıWhat if?* questions.

The thinking behind Advantage is that the pupils must be encouraged to do this, as effortlessly as possible, without depriving them of features. It is for this reason that some measure of intelligence is built into Advantage so that it works with, not against you (for example, by formatting data as it is entered and sizing the sheet automatically to print).



B10 ☒ ☑ =AVERAGE(B3:B8)

	A	B
1	name	age
2		
3	Lynne	13
4	Marie	14
5	Rachel	14
6	Sally	15
7	Katie	14
8	Nichola	14
9		
10	Average	
11		

Figure 2.
Using functions in Advantage

USING ADVANTAGE

Unusually, clicking on the icon on the icon bar opens two separate windows: the worksheet window and the control window (see figure 1). The latter has a tool bar with 10 icons and status details to the right. Given Advantage's relative sophistication, this style of information display is a good compromise, and immediately makes you want to use the product: there is no clutter. The menu that opens over the sheet window displays a total of no more than seven headings, yielding fewer than three dozen options in all, plus associated dialogue boxes.

All of these are straightforward to use; the most common (except print and save) are duplicated on the tool bar. Most have keyboard alternatives. But it is a pity, given the need to let some (perhaps figure-phobic) spreadsheet first-timers in gently, that this button bar cannot be configured incrementally as is the case with the same publisher's Pendown word processor.

Helpfully, the designers of Advantage have adopted a five-cursor system to show clearly what it is doing at any one time. Use of the cursor, in fact, is a very important aspect of working with Advantage; short of displaying icons on screen for the digits 0-9 and letters A-Z to click on, virtually everything (including column resizing) can be done with the mouse pointer, and tick icons confirm or cancel data entry, for example (see figure 1).

CHARTS

Just six types of chart are possible. Where appropriate, the data can be displayed stacked, and there are options to show series as percentages, and to put in the connecting lines between points in scatter graphs. Usefully, Advantage treats a chart as a separate object to be saved and printed in its own right. Again, most aspects of a chart's style can be controlled to facilitate interpretation - the font and size etc. of a legend, the palette and axes. Grids can be employed to this end as well.

Even though Advantage does not have so comprehensive a set of chart types as Eureka, for instance, pupils can learn how to maximise the impact of their work and graduate in due course to the more advanced package if necessary.

FUNCTIONS AND FORMULAE

Advantage has nearly a hundred functions. Although many of these (periodic compound interest and modified internal return rate, for instance) may not be used in the course of normal school work, their presence is not intrusive. Most, in fact, can only be accessed from the ıPaste Function* dialogue box (i.e. they can only be used in a formula).

Once again, control of functions is almost exclusively by means of the mouse (see figure 2). Click on the cell where the result is to go, then on the function icon on the tool bar (if you want one of the 14 most common) and choose it from the menu. A caret is placed inside brackets in the entry area. Select the cell (or cells) by clicking (or dragging). A dotted marker shows the zone that you have selected. When happy, click on the tick icon.

The use of functions is intimately bound up with formulae; reading about their use in the manual is consequently a little confusing. Formulae must each begin with an equals sign '=', and operation is straightforward. A real boon is being able to attach a name to a formula so that a pupil working in a commercial environment could reinvoke the ubiquitous = (cell)*117.5/100 formula simply by naming it 'VAT'.

DISPLAY

Longman Logotron has gone for a similar approach to the appearance of data on screen (and as hard copy) as with its visually appealing database, Pinpoint. Fonts and sizes can be easily changed. Dialogue boxes allow you to alter colour and other aspects of style, indeed to generate output to presentation standard.

This is important in a classroom context, where wall display and the collection of examples of pupils' work in a personal file or project folder count for so much. There are a number of ways to streamline printed output (automatic insertion of time and date, and the use of headers and footers, for example). Printing has a chapter to itself in the manual.

Formatting is performed with similar ease: a simple menu leads to logical dialogue boxes. There is control over 20 formats for numbers and ample control over alignment, font, colour and border, as well as column and row width/height. Oddly, this is also where cell protection is affected.

Replication - though the word does not appear once - is achieved exclusively by means of dragging and selecting with the mouse; if you prefer older methods with key presses to indicate source and target zones, you may find this offputting. In fact, after performing the operation a couple of times, it becomes quite natural.

DOCUMENTATION

The 100 page manual is in Longman Logotron's usual style, having chapters on getting started, using worksheets, formulas (sic), formatting, charts and printing. Its tutorial, though, which uses SMILE worksheets, has an odd learning sequence: after explaining some of the conventions of the Wimp and the keyboard, it moves straight on to handling a rather pointless formula. For

DTP: Getting the best from Ovation

Maurice Edmundson describes another useful feature within Ovation - mail merge.

The mail merge facility was introduced into version 1.36 onwards of Ovation. The release notes explained briefly how to use the merge facility, and I shall describe the technique in a little more detail here. Let us suppose you hold a secretarial role with a music society numbering about 30 persons, which entails sending circulars and other common material to the members three or four times a year - precisely the type of requirement where mail merge is so helpful.

PREPARING THE CSV DATA FILE

First it is necessary to prepare the membership list as a text file in CSV (comma separated value) format. This format can be exported from many databases and spreadsheets such as RISC Development's Masterfile III and Colton Software's Pipedream. Each full name and address is called a 'record', and each record must occupy one line with a carriage return at the end. Each item in a record is termed a 'field'. Each field has opening and closing quotation marks, and between each pair of fields there is a comma. In some cases the quotation marks may be omitted, but they are essential if the field contains spaces or textual punctuation marks. It is also possible to construct the address list manually using Edit or Ovation. Open up a document window and type the records and fields exactly as described above (see figure 1), and then choose *Save as Text* (from Ovation's *File* menu) with a name such as *List1*.

The fields have to be chosen with some care. In a simple example they might be as follows:

1. Surname
2. Title and Initial(s)
3. First address line
4. Town
5. Post Code

A typical record in the CSV data file might look like this:

```
"Amos","Mr.R.T.","16 Byron Street",
"Rugby","RU14 1JQ"<CR>
```

where<CR> means the carriage return at the end of each record. Having the surname first makes for easy searching through the file. It is essential that the fields in all the records match each other. That is to say, field 3 must always be the first line of the address, field 5 must always be the post code and so on.

Unfortunately addresses often vary from the above example. Some addresses may have one or two extra lines, and these have to be given a later field number so that the merge will be carried out correctly for the special cases, without pushing the main fields out of sequence. Use a blank field where necessary.

In Ovation, a pair of quotes will be taken to mean a blank field and nothing will be printed at this merge command. Nor will later fields be shunted forward to take its place; they retain their normal position. If a field contains textual quotation marks then extra quotes have to be placed in front of each to tell the program what is intended. For example, the third field in a private address might be:

"The Oaks",

(note I have arbitrarily included a comma and a space also). The beginning of this record would appear as follows:

```
"field1","field2","""The Oaks"", ",
"field4", etc.
```

In field 3 the first quotation mark is the usual CSV code for a new field, the next two are to tell the program to print quotation marks, similarly the two after the word Oaks. Then follows a text comma, a space and finally the quotation marks for the 'end of field' followed by the comma which separates field 3 from field 4. It may look complex at first, but it is very logical, and you will soon get used to it. I may add that I don't myself usually bother with text commas in addresses.

Now let us consider what the address CSV file should look like, taking into account all of the above rules (figure 1.). In practice, each record will normally have a line to itself, but this could not be done in figure 1 within the constraints of the column. Carriage returns do not show, but must occur at the end of every record.

In record 3 the extra address line "Dunromin" is positioned as field 6, and in record 4 a reminder required in the body of Mr. Green's letter is positioned as field 7. All records have 7 fields, but in some, fields 6 and/or field 7 are blank. Record 2 shows another dodge for including the extra place name 'Ashwell'. It has taken the

```
"Amos","Mr. R.T. ","16 Byron Street","Rugby","RU14 1JQ","",""
"Barnes","Mr. & Mrs. P. ","8 Long Lane","Ashwell","Rugby, RU5 7
TX",""
"Evans","Mrs. S. ","5 Willow Hill","Rugby","RU18 9BB","""Dunro
min"", ",""
"Green","Mr. A. ","42 Crompton Close","Rugby","RU5·1 9BB","","P
lease pay your sub. as soon as possible."
```

Figure 1

town position (field 4). Rugby has been added to field 5, and will now be printed on the same line as the post code.

PREPARING THE LETTER

The letter heading may be printed in advance or it may be held as an Ovation document with two text frames positioned ready for the date and the addressee (figure. 3). The date is entered using <Ctrl-Insert>, the letter is composed and the merge commands entered at the appropriate places in the addressee text frame, after the introductory "Dear", and where necessary within the body of the letter. These commands are inserted in a special way. Position the caret where the command is required then press <Ctrl-I>. A small dialogue box will open in which you enter the number of the field required at that spot (figure 2).

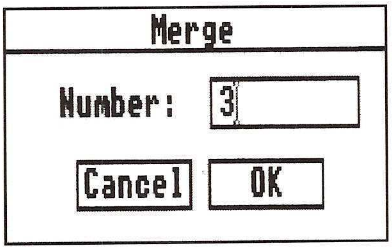
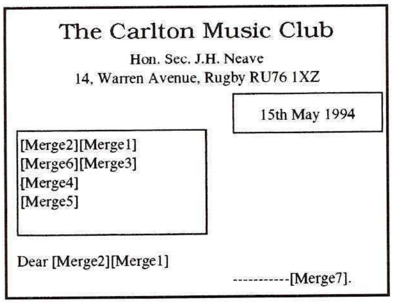


Figure 2

Select 'OK' and the command will be printed in the text inside square brackets i.e. [Merge3]. When ready, bring up the Print dialogue box (File menu), highlight the Merge button and drag the icon of the CSV text file from its directory window into the write-slot. Select <Print> and all the letters in the file will be printed successively. They also appear in turn on the screen.



The Carlton Music Club

Hon. Sec. J.H. Neave
14, Warren Avenue, Rugby RU76 1XZ

15th May 1994

[Merge2][Merge1]
[Merge6][Merge3]
[Merge4]
[Merge5]

Dear [Merge2][Merge1]

----------[Merge7].

Figure 3

Follow the instructions given here and all the benefits of mail merge using Ovation are yours to command. And what a difference it can make wherever the technique is appropriate. If you haven't tried Ovation's mail merge facility before, maybe now is the time to try.

The Advantage of Spreadsheets (cont. from page 45)

pupils new to spreadsheets, adding up a simple list of figures that they have entered might have meant more.

CONCLUSIONS

Advantage represents exceedingly good value for money. It has almost all the facilities and features likely to be needed in schools; it is well designed and easy to use. Advantage is a good name indeed.

True, there are some minor niggles with the layout, rather than the content, of the documentation. Some aspects of the user interface are a little non-standard. None of this should detract, though, from an excellent and robust product which has identified its market (somewhere between Kudlian Soft's DataSheet at the same price, and Eureka at three times as much).

If you already use Eureka and want to introduce pupils of all abilities to the fundamentals of spreadsheets, and if you want to maintain compatibility with your existing Eureka data at home (Advantage reads this, as well as CSV and SID) then Advantage must be very seriously considered. It deserves to sell and be used in a variety of school and college circumstances. Recommended.

PRODUCT INFO

Product	*Advantage*
Supplier	*Longman Logotron* *124 Science Park,* *Milton Road,* *Cambridge CB4 4ZS.* *Tel. 0223 425558* *Fax. 0223 425349*
Prices	*£49 ex. VAT (single user)* *£120 ex. VAT (primary site licence)* *£190 ex. VAT (secondary site licence)*

Wimp Topics - Useful SWI Calls

by Alan Wrigley

This month's *Wimp Topics* is in a slightly different format from usual. Normally we discuss a single topic in detail, but this month I want to look at a selection of lesser-known Wimp SWI calls which can be useful for Wimp programmers, but which do not warrant a whole article in themselves.

WHICH ICON?

There is a very under-used SWI call, namely "Wimp_WhichIcon" (&400D6), which can be very useful in certain circumstances. What this call does is to tell you which icons, in a specified selection, match given criteria. The matching is done by comparing the icon flags word for each icon in the window. The entry parameters for the call, which will be explained in a moment, are as follows:

R0 = window handle (or -1 for icon bar)
R1 = pointer to block
R2 = bit mask
R3 = bit settings

On exit, the block pointed to by R1 is filled with the handles of matching icons.

The bit mask (R2) indicates which icon flags to consider when selecting the icons to compare, while the bit settings (R3) indicate which settings to compare those icons with. In other words, if (icon flags AND bit mask)=(bit mask AND bit settings) then that icon is included in the list returned by the call. This sounds a little complicated at first, but is quite straightforward when considered in the light of an example.

A very obvious use for this call, and the one which is most likely to be considered, is to detect which one of a group of radio icons is currently selected. Using the call can often simplify a program. The conventional way to handle radio icon groups is to maintain a variable to indicate the current setting, and alter that variable when mouse clicks are detected over one of the icons. However, in many cases you could dispense with the click handling procedure and simply read the currently selected icon when you need to act on it.

For example, suppose that you want to find out which icon with an ESG number of 2 is selected. The ESG number of an icon is held in bits 16-20 and has a maximum value of 31, while the selected bit is 21. So the bit mask would contain (31<<16)+(1<<21), i.e. &3F0000. This tells the Wimp that the ESG and the selected bit are the attributes you are interested in. The bit settings will tell the Wimp that the icons to match are any with the selected bit set plus an ESG of 2. This value is therefore set to (2<<16)+(1<<21), i.e. &220000.

The example would therefore be implemented as follows:

```
    SYS "Wimp_WhichIcon",whandle%,block%,&3F000
0,&220000
```

block% will now contain a list of the handles of all icons that match (4 bytes each), terminated by -1. In the example given here, there will be only one handle in the list, since only one radio icon can be selected at any one time.

BLOCK TRANSFER

If you are faced with the task of transferring the contents of a block of memory to another location, you might immediately think that a simple loop using indirection operators is the only logical way of doing it, as in the following example:

```
FOR i%=0 TO &400 STEP 4
destination%!i%=source%!i%
NEXT
```

For transfers involving small amounts of memory, this method is quite acceptable. However, for larger blocks there is a much better way, which is to make use of the SWI "Wimp_TransferBlock" (&400F1). This is described by the PRM as a call to transfer a block of memory from one task's address space to another's, and several RISC User applications have made use of this facility to read data from another application (for example *Desktop Auto-Save*, RISC User 4:8). The entry parameters for the call are as follows:

```
R0 = handle of source task
R1 = pointer to source buffer
R2 = handle of destination task
R3 = pointer to destination buffer
R4 = buffer length
```

What the PRM does not tell you, however, is that the call still works if the source and destination task handles are the same; in other words, the transfer is made between two locations within the same task's memory.

This has a number of advantages over the indirection loop method. Firstly, it is very much faster. In tests that I carried out I found there could be as much as a ten-fold increase in speed over the alternative method. Secondly, it can simplify the code greatly. Although undocumented as such, the call appears to work correctly when the source and destination blocks overlap, and also the start address of the block does not have to lie on a word boundary. These two features taken together make the call extremely versatile, and enable it to be used, for example, for shunting text around in a document as it is edited.

To take a simple example, suppose that you have a text buffer 256 bytes long starting at buffer%. If you want to insert a character of ASCII value char% at position pos% in the buffer, all you need do is the following:

```
    SYS "Wimp_TransferBlock",ourtask%,buffer%+
pos%,ourtask%,buffer%+pos%+1,256-
pos%buffer%?pos%=ch ar%
```

and to delete the character at the same position:

```
    SYS "Wimp_TransferBlock",ourtask%,buffer%+
pos%+1,ourtask%,buffer%+pos%,256-pos%
```

You can also use the call to transfer a section of memory from your application workspace to a block of memory claimed from the RMA. In this case, you should quote the address of the RMA block as the destination address and use your own task handle for the destination as well as the source.

MENU SELECTION

The most widely-used method of acting on menu selections is to respond to poll code 9 (Menu_Selection), and to use the numeric data returned in the block to decide which menu item has been chosen. The following section of code is typical:

```
DEF PROCmenuselect
CASE !block% OF
 WHEN 0:CASE block%!4 OF
  WHEN 0:...
  WHEN 1:...
  WHEN 2:...
  ENDCASE
 WHEN 1:...
 WHEN 2:CASE block%!4 OF
  WHEN 0:...
```

and so on. This is all very incomprehensible to anyone except the programmer, and also means that if the menu structure is altered in any way, the values in the CASE statements will no longer correspond to the correct selection without alteration.

However, the Wimp provides a clearer way to do this. The SWI call "Wimp_DecodeMenu" can be used to convert a menu selection into a text string representing the item chosen. Not only will this make your program easier to read, but it will also mean that the menu selection procedure will need to be re-written less often - for example, as long as there is a menu item entitled "Quit" in the menu, it will be acted on correctly regardless of its position in the menu.

The call takes the following parameters:

```
R1 = pointer to menu structure
R2 = pointer to list of menu selections
R3 = pointer to buffer
```

On exit, the buffer will contain a string representing the chosen item, with each element separated by a full stop. Examples might be "Display.Font.Trinity", or "Edit.Undo". The list pointed to by R2 can be taken directly from the block returned by poll code 9, so a menu selection procedure for a menu structure stored at *menu%* might now look something like this:

```
    DEF PROCmenuselect
    SYS "Wimp_DecodeMenu",menu%,block%,buffer%
item$=$buffer%
    CASE item$ OF
     WHEN "Options":...
     WHEN "Save.Text":...
     WHEN "Save.CSV":...
     WHEN "Save.Data":...
     WHEN "Quit":...
```

and so on.

Of course, if you are using MessageTrans to create menus from a list in a message file, things will be more complicated since the text of the menu items will not be known in advance. If you want to use this method under these circumstances, you would need a function which obtains the correct string from the appropriate message token before decoding it as above. We haven't enough space this month to deal with this, but we will probably look at the use of MessageTrans in a future Wimp Topics.

HARDWARE AND SOFTWARE EXPANSION FOR ACORN COMPUTERS

DUAL RS423 SERIAL INTERFACE - two additional RS423 serial interfaces for communicating with RS423 or RS232 devices eg modems (in order to use bulletin boards), printers, plotters, instruments, etc. Up to four cards can be fitted in a computer.

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SCSI DEVICES - internal and external hard disc drives, magneto-optical removable disc drives, tape streamers etc.

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Intelligent Interfaces are Bradly Associates distributor for GINO-F 3D, GINOGRAF, GINOSURF for Acorn RISC OS-based Computers.

TERMULATOR - enables a computer to emulate a terminal from the VT range (VT52, VT102 or VT220) or a Tektronix 4010 graphics terminal.

Termulator a trade mark of Acorn Computers Limited is applied to this product under licence from Acorn Computers Limited.

COMPLETE SYSTEMS - configured to customer's requirements by fitting RAM upgrades, hard discs, expansion cards, etc.

ADVICE - SUPPLY - SUPPORT - Intelligent Interfaces were established in 1981 and have enjoyed a long relationship with Acorn Computers. This places them in an ideal position to advise on, supply and support systems purchased from them.

INTELLIGENT INTERFACES

The PC Emulator Survival Guide

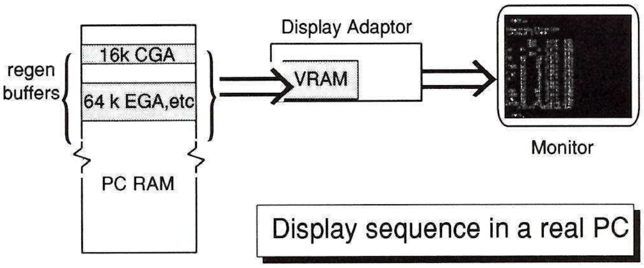
Gordon Gilmore attempts to shed light on the mysteries of the PC display modes.

During February I received a plea from Mike Cumpstey of Altrincham to explain the confusing array of PC display modes and their relationship to the Arc display modes. A not unreasonable request, so here we go!

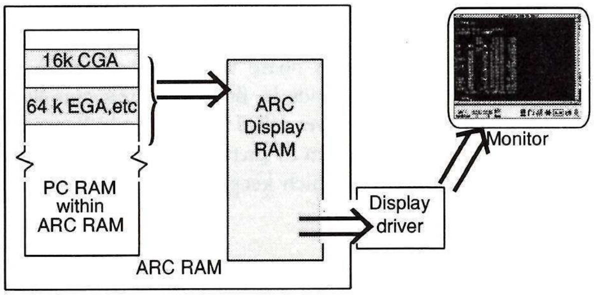
First of all, we need to appreciate that all PCs have a display adaptor, physically a separate plug-in circuit board, which takes information from the computer's main memory and does whatever is necessary to present a visual image on screen. The Arc has to do the same, of course, but this is all handled on the motherboard. The plethora of PC display adaptors is, as with many other aspects of the PC, a consequence of short sightedness at the design stage. IBM could not believe that business would want a colour display, much less graphics, and the original PC in 1981 was provided with a text-only monochrome display adaptor (MDA). This was soon followed by the colour graphics adaptor (CGA) which would allow two-colour graphics at 640 by 200 pixel resolution or four colours at 320 by 200.

Bear in mind that at the time Acorn, bless them, were selling the BBC Microcomputer, able to display two colours at 640 by 256, four colours at 320 by 256 or a whole sixteen colours at 160 by 256 resolution. Not only that, but with commendable foresight the basic screen addressing was, and still is on the Arc, at a basic 1280 by 1024 resolution. Very soon after third parties such as Hercules (who are still with us) and Plantronics (who are not) started to supply more sophisticated colour graphics adaptors.

In 1984 IBM produced the enhanced graphics adaptor (EGA) allowing 16 colours at up to 640 by 350 resolution. EGA was, in turn, followed by the professional graphics controller (PGA) which was very little seen, but did establish the 640 by 480 standard. Eventually, in 1987, the video graphics array (VGA) standard 640 by 480 by 16 colours, was introduced. Bear in mind that at that time Acorn had released the Archimedes with 640 by 512 by 256 colours! SVGA (Super VGA) came about through the efforts of third party developers who independently (and incompatibly) produced adaptors with higher resolution than the standard VGA. The situation was resolved by the Video Electronic Standards Association (VESA) which decreed that SVGA resolution should be 800 by 600 pixels, but still using only 16 colours. The standard has since been broadened to include 1280 by 768 and 1280 by 1024 (recognise that) resolutions with up to 16 million colours.



Display sequence in a real PC



Display sequence in the emulated PC

Obviously the more colours catered for and the higher the resolution, the more bits and bytes need to be handled. Since the maximum size of the DOS regen (display) buffer is 64K, this has to be done in fast RAM on the display adaptor board itself using dedicated video RAM. On the Arc, higher resolution screen display just takes a larger slice of main memory. This is why the configuration of the PC Emulator involves selecting the size of the EGA display memory. The way in which the PC display is emulated is shown in figure 1. The information is paged into the adaptor via the regen buffer, each page or colour plane, representing one bit of the colour information.

Each of these adaptor types can handle particular screen modes, and are downward compatible. EGA can handle CGA modes, VGA can handle EGA and CGA modes for example, but a CGA adaptor is limited to its own screen modes. Table 1 shows the resolution used for all the current PC modes, with the exception of those intended for specific adaptors such as that for the ill-fated PC Junior. The table shows two mode numbers. If you are trying to alter the mode in DOS you would use the DOS mode, if you are using QuickBASIC or its equivalent, you would use the Basic screen mode number. Confusing isn't it?

For the programmer, the EGA adaptor presents difficulties because it uses write-only registers. This means that a program cannot interrogate the display board to find out what the current display mode is. Because of this true PCs may load a driver called EGA.SYS which gets around the problem by pretending to be EGA read-write buffers which keep track of the display mode parameters.

SCREEN MODES UNDER THE EMULATOR

What about the Arc, what screen modes does it use when running the PC Emulator?

First of all, when multi-tasking, the screen mode must be the normal Desktop mode, 12 or 15 on a normal monitor, 20 or 21 on a multisync, or whatever your favourite is. If you compare the table above with the table of screen modes in your User Guide you will find that modes 25 to 28 are similar to some of the VGA modes. These are intended for use if you are using a VGA monitor on your Arc but would, I assume, be used when single-tasking the Emulator in VGA modes. Of course, unless you have a VGA or multi-sync monitor you cannot single-task the VGA modes at all.

When you run the Acorn PC Emulator, three new display modes, 44, 45 and 46, are defined by the ModesCGA module. These are used when single-tasking to emulate the CGA display. The alternative Emulator !FasterPC also sets up extra screen modes 54 to 58 in the same way. You can examine the characteristics of these extra modes if you have the !ModeAid application supplied on the RISC User magazine disc 5:3. In any case, you will find that after running the Emulator, you can select these extra modes using the icon bar Palette menu.

The aspect ratio of the common Archimedes screen modes, 640 by 512 is not the same as that for the PC modes; 640 by 200, 640 by 350, or 640 by 480. In 640 by 256 modes such as 12 and 15 the displayed elements are rectangular, 2 pixels wide by 4 pixels high, rather than square, to retain the same aspect ratio. For that reason, when multi-tasking, it is inevitable that the PC window will have the wrong aspect ratio. The monitor cannot display one part of the screen at one pixel line spacing and another at a different one. If this is a problem then you should choose the most appropriate Archimedes mode from those available to you, the VGA modes 25 to 28 perhaps.

Incidentally, those of you with !FasterPC will be aware that the screen appears to be narrower than normal. This is because it uses the normal PC text height of 32 pixels per line in the CGA modes (25 x 32 = 800 screen co-ordinates). The Acorn PC Emulator spreads the display vertically to about 962 screen co-ordinates, still a little less than the full Desktop height of 1024.

MONITOR TYPES

As if all this confusion weren't enough, the different adaptors produce different types of output. MDA, CGA and EGA boards provide digital signals, whereas VGA boards produce analogue signals. Obviously the monitor must be capable of receiving the appropriate type of signal, but must also be able to synchronise to the different scan rates necessary to display the different number of lines per screen. The Arc provides an analogue RGB output, and can, therefore, with a suitable selection of Archimedes screen mode, feed a VGA monitor as well the normal RGB and multi-sync monitors. All VGA adaptors can handle the CGA and EGA screen modes and do not need to be set up specially to do this.

DOS Mode	Resolution (x by y)	Colours	Basic Mode	Notes
CGA Adaptor modes				
0,1	40 by 25	16	0	Text only mode (also 40 by 43 or 50 with EGA)
2,3	80 by 25	16	0	Text only mode (also 80 by 43 or 50 with EGA)
4,5	320 by 200	16	1	Text width 40
6	640 by 200	2	2	Text width 80
EGA Adaptor modes				
13	320 by 200	16	7	
14	640 by 200	16	8	
15	640 by 350	4	10	Monochome monitor only (also 40 by 43 text)
16	640 by 350	4	9	(also 40 by 43 text)
	or 640 by 350	16	9	with more than 128 kb of EGA video memory
VGA Adaptor modes				
17	640 by 480	2	11	80 by 30 or 80 by 60 text
18	640 by 480	16	12	80 by 30 or 80 by 60 text
19	320 by 200	256	13	40 by 25 text
SVGA Adaptor modes				
	640 by 480	16 to 16 million		
	800 by 600	16 to 16 million		
	1024 by 768	16 to 16 million		
	1280 by 1024	16 to 16 million		

Unless otherwise noted text is displayed at 25 lines per screen.
DOS and Basic modes not listed here are only applicable to special display adaptors.

ANSI.SYS

Mike also asked what role ANSI.SYS has to play in deciding the screen mode. Normally the answer is none. ANSI.SYS can alter the screen mode at the DOS command line but it is difficult to see why anyone would want to. One might want to alter the mode from within a program, but that is a different matter. Whatever the language used, the internal screen mode commands (which work via DOS interrupts) would be used. If you have ANSI.SYS loaded from your configuration file and you are running under DOS 5.0 or later, then the following commands will alter your display mode to the 640 by 480 graphics mode 17 and reset the prompt:

```
PROMPT $e[=17h
PROMPT $p$g
```

All very well, except that if you try it you will find that you no longer have a cursor. Type:

```
MODE CO80
```

to get back to normal. The mode command can also be used (with ANSI.SYS loaded) to alter the text display format page thus:

```
MODE CON: COLS=40 LINES=43
```

will set 40 characters on 43 lines of text.

FINALLY...

Mike Cumpstey's remaining question was "What are VGA modes 4, 9, and 19?" I have to say, I don't know! Mode 19 is, according to the table, clearly a VGA mode but modes 4 and 9 are CGA and EGA respectively, although they would be handled by a VGA adaptor.

In normal circumstances you needn't worry about the various modes. If you are multi-tasking, choose a mode which suits you best, and leave the Emulator to sort out its own modes. The only times you would need to handle PC screen modes is when programming. In Basic, the SCREEN statement would be used to set the appropriate mode for what you wish to display. Your C or C++ compiler will again provide the appropriate library functions. In either case this is transparent to you, the control statement will talk directly to DOS and through DOS to the display adaptor, whatever that may be.

ANSWERS TO LAST MONTH'S 'QUIZ'

The Babylonians invented the abacus, the first mechanical aid to calculation. Hollerith invented the punched card system which formed the mainstay of computer data input for many years. The Manchester Mark I was the first computer to use a stored program. Dartmouth College (US) was the birthplace of Basic. VisiCalc was the first spreadsheet program. At the time mainframe programmers refused to believe such a program was possible.

Into the Arc: System Variables - The Hidden Resource

Mike Williams explains how the RISC OS Desktop 'remembers' all that it needs to know.

The RISC OS Desktop is really quite remarkable. Its operation is so often overlooked that it is easy to forget just how much work is going on beneath the surface. Take something simple like double-clicking on a data file of some kind (like an Fireworkz spreadsheet) - how does your system know where the corresponding application is stored, and what action to perform. Take another example - you run a DTP or word processing application and immediately have access to all the fonts on your system. How did the application 'know' what fonts were available? The answer to this and many other questions about Desktop actions lies with *System Variables*. In this month's article in this series we'll take a look at what they are and how they are used.

Essentially, system variables provide RISC OS with the means to store all the information it needs to work correctly, and system variables are also used extensively by other applications for the same kind of purpose. A system variable is a name which can be used to reference a piece of information. These names follow a convention laid down by Acorn, and can normally be distinguished by the presence of a '$' character within the name, and a certain pattern to its make-up. For example, *Font$Path* provides information on the fonts currently available to any application in the form of a list of font directories.

Now it is all very well to quote an example like that above, but when you switch off your computer all knowledge of system variables is completely lost. When you first switch on, part of the automatic startup sequence involves defining a standard set of system variables with a set of default values. Sometimes these values will be determined by status settings stored in CMOS RAM. These settings are not lost when your computer is switched off, because there is battery back-up to CMOS RAM to provide sufficient power.

If you want to see what system variables currently exist, you can do this in one of two ways. If you press F12, to exit from the Desktop, just type the command *Show* and press Return, and you will see all the system variables which your system knows about. Alternatively, and this avoids leaving the Desktop, press the menu button over the Task Manager (the green acorn on the icon bar), and select *Task window* (a shortcut is to press Ctrl-F12). Then enter the same command and press Return.

If you try this, you may well be somewhat put off by the length and apparent complexity of the resulting list. Don't worry - we aren't going to be looking at this in any detail, but it does give you some indication of just how much information RISC OS has to manage.

BEING SEEN

If you have read through the pages of RISC User, or other magazines, you may well have come across a statement that some application or other must have been 'seen'. The problem which leads to this need is more likely to arise with a floppy only system, but can also occur with hard disc systems as well. Let's look at an obvious example.

You probably know that there is a special application called !System which is normally situated in the root directory of a hard disc. Within this application is a directory called *Modules*, and inside this you will find a number of files. These are modules which can be loaded and shared by all applications running on your system. Find your copy of !System, double-click while holding down Shift to open the application directory. Then double-click on the *Modules* directory. !Scrap is another application used by other applications, including the printer drivers.

In the days of RISC OS 2, modules like CLib and FPE used to live in the Modules directory of !System, but these very commonly used modules were moved into ROM under RISC OS 3. However, other modules including those supplied with third party applications still need to live here - for example, *Basic64*, Acorn's latest Basic interpreter, *FrontEnd* supplied as part of Acorn's DDE, plus *ABCLib*, the Basic compiler run-time library from Oak Solutions. If an application needs to use either !System or !Scrap, then the application needs to know where they are stored. That's where system variables come in. *System$Path* and *Wimp$Scrap* are system variables which provide that information, but they have to be set up to start with. Here's how it works.

Whenever a directory is opened on the Desktop, RISC OS checks within that directory each application directory (i.e. a directory beginning with a '!') to see if it contains a file called !Boot. Most, but not all applications contain a file of this name. It is usually a short file containing just a few commands which are executed the first time the directory is opened. One of these commands is normally *Iconsprites* which tells RISC OS about the sprite, or icon, used to represent that application. It is the !Boot file which also defines any system variables. So if you open the !System application directory as described before, and drag the !Boot file to Edit (load Edit so that it is visible on the icon bar first) you will see the commands which check for and set up both *System$Path* and *System$Dir*.

This all happens quite automatically when you open the directory containing !System, and all the applications visible in that directory will then have been 'seen'. Most hard disc users use a boot file to set up their system in a more customised way. Such boot files contain special commands (Filer_Boot) which simulate the same process without actually opening the relevant window on screen. This can be useful, as all this takes time, but the boot file can be configured to deal only with certain applications. Opening a window applies the process to all applications.

OTHER USES FOR SYSTEM VARIABLES

Let us suppose that you have a copy of RISC Developments' DeskEdit, and that you have installed this ready for use on the icon bar. Double-click on any ASCII text file and it will automatically be loaded into a DeskEdit window. Now load Acorn's Edit, and repeat the double-clicking on the text file. Now it will be loaded into Edit, not DeskEdit. What has changed?

Most files stored on an Archimedes system have an associated *filetype*. Acorn has allocated filetype numbers for many files, and allocates filetype numbers to third parties to be used with other software. For example, an Ovation document has its own filetype number (&CDD in hexadecimal, but that's another story). At power up RISC OS assigns names to all the common Acorn filetypes, so if you use Edit, for example, you can use the *Settype* option to change a filetype by reference to a name, not a difficult to remember number. The other thing that happens at start-up, is that system variables are used to specify what action to take when a user double-clicks on a file. When a third party application has been 'seen' its !Boot file defines the action for files belonging to that application. Ovation's !Boot file says that Ovation should be loaded, if not already loaded, and the document loaded into Ovation.

When DeskEdit is seen or run, it specifies in the same way that when a user double-clicks on a text file, DeskEdit should be run and the file loaded into DeskEdit. If Edit is subsequently loaded, its !Boot file says that text files should be loaded into Edit, and that action will remain true even if Edit is removed from the icon bar. You can restore the original state by quitting and then reloading DeskEdit, or if you want to feel clever, open the DeskEdit application directory, and double-click on its !Boot file.

There are many other places where system variables provide the information RISC OS needs. It's all part of that hidden world that we usually don't see. If you use the Show command as described, and drag examples of !Boot and !Run files into Edit from within an application directory you will see some of this hidden world. It all goes to show just how much is happening underneath the Desktop.

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HINTS & TIPS

Keep sending in your hints on anything relevant to the Archimedes range. And remember, we pay for every hint we publish.

BIGGER DEBUG WINDOW

Ken Cowap

Users of the Debug program in the Wimp Programmer's Toolkit may find themselves a little short of space for report strings in the ten lines of the Wimp Debug window. This is currently limited to 14 characters per line.

For Basic programmers the solution is to amend the file !Debug.B_Funcs as follows:

```
    1050 mess$=LEFT$(mess$,56)
    1110 mess$=LEFT$(mess$,56)
```

This will make full use of the size of the Wimp Debug window, allowing 13 digits for each variable value.

CONFLICT BETWEEN DRIVERS

I.D.Buchanan

A problem can arise when using printer drivers which modify the original !Printers printer manager. Computer Concepts' Inkjet Turbo Driver modifies the original driver as does the RISC Developments Deskjet colour Printer Driver.

If the Turbo Driver is loaded according to the instructions, and subsequently the Deskjet Driver is loaded, then the Deskjet Driver will not work - it just prints rubbish, though the Turbo Driver is unaffected. The solution to this problem is to keep the two drivers separate. Load the Turbo Driver to modify one copy of the Acorn Printer Manager, and load the Deskjet Driver to modify another.

QUICK DIRECTORY CONTENTS LISTS

Lee Calcraft

To get a complete list of all the objects within a particular directory, just open a Filer window on the directory, click Menu, and choose *Select All*, then drag the whole lot to an open Edit or DeskEdit window with the Shift key held down. The complete list will appear in milliseconds. And you can then do whatever you want with it - including printing it out.

This is based on the very useful fact that an object dragged to an Edit or DeskEdit window with Shift pressed will insert the full pathname of the object at the caret - very handy at times, especially when creating Obey files.

EMBOSSING WITH REVELATION

Michael Cooper

You can create some exciting special effects, including 3D embossing, with Revelation (or Revelation2 or ImagePro), as follows.

Firstly, load a sprite as a 256-colour Revelation Page (i.e. perform a normal load in a 256-colour mode). Then load the sprite again as a Motif by dragging it onto the Revelation main menu window.

Next, translate the image on the Page into a negative by using the *Colour Shift* dialogue (click on Colour shift on the Page menu, then click on *Negative*, and then *OK*). Then select the *Blend* or *Blend: dither* option on the Paste tool, and paste the positive Motif onto the negative Page. If the two images are offset by a millimetre or two both vertically and horizontally you will get an embossed effect. Changing the amount and direction of the offset will allow you to refine your work, giving it different light and shade effects. And the same techniques can be applied to text to produced 3D lettering effects in any font.

MORE SLABBED ICON PROBLEMS

James Miskin

When you use outline fonts in slabbed icons there can sometimes be spurious errors. It appears that when the icons are slabbed some SWIs that use the Wimp can complain.

The way around this problem is to create a slabbed icon which contains no text. Then create a non-slabbed icon over the top of this, which has no border or background and which contains the text. This combination does the business, and neatly avoids the error messages.

A4 WINDOW DROPPING

Jack Lilingston (Castle Technology)

There is a bug on the A4 postable which causes it to occasionally drop windows during a drag, when the window stops moving mid-drag as if the user had released the Select button.

This occurs because the Acorn keyboard can send mouse information faster than the A4 can absorb it. When this happens the A4's mouse channel can become overloaded. To recover from the overload the A4 will perform a resynchronisation event with the keyboard. After such an event the Acorn keyboard does not report the fact that the mouse button is pressed, and the window is consequently dropped. Castle Technology replacement keyboards uniquely send complete data (including mouse button data) when they are resynced by the A4, rendering dropped windows a thing of the past.

MODIFYING STYLE'S TIME AND DATE FORMAT

H.Morgan

You can alter the format used by Impression Style for displaying dates and times by altering the program's !Run file as follows.

Drag the !Run file from the !Style directory into a text editor (e.g. Edit), and locate the following line (near the bottom of the file):

```
  IF "<Style$TimeFormat>"=""then  Set
Style
 $TimeFormat "%12:%mi:%se %pm"
```

Then alter the last string that is enclosed within quotes to the required format, using the syntax described on page 137 of the RISC OS 3 Applications Guide.

Use the same method for the line:

```
  IF "<Style$TimeFormat>"=""then  Set
Style
 $TimeFormat"%dy%st%mo%ce%yr"
```

ChangeFSI VERSION 0.95 ERROR REPORTING

Lee Calcraft

The latest version of ChangeFSI, which incidentally will happily convert Photo-CD images into sprites, adopts a new approach to error handling when used from the command line.

Instead of generating an error to be handled by the current error handler, it behaves more subtly, and more usefully. It sets a system variable to contain the error message. In that way, a program or Obey file calling ChangeFSI can make its own decisions about how to handle any errors which occur. The variable:

```
  ChangeFSI$ReturnCode
```

is set to the error message if an error occurs, or is unset otherwise.

WORDPERFECT WITHOUT A HARD DISC

Barry Cartman

WordPerfect is compatible with the PC Emulator, but using it is impractical without a hard disc.

However, floppy-only users can use the lesser-known *LetterPerfect*, which is simply a scaled down version, providing full file compatibility and all the basic functions of WordPerfect. It has a "minimal installation" option which fits on a single 720k DOS disc and which will run satisfactorily with just one floppy disc. The snag is that the directory, thesaurus and the help files, are not available, and the program disc needs to be accessed from time to time, which will mean disc swapping if your files are located elsewhere.

It is even possible to avoid the disc swaps if you have 2Mb of RAM and version 1.8 of the PC Emulator by using single-tasking mode, allocating 320K to LIM EMS, and loading the working parts of LetterPerfect into a RAMDRIVE.

DISTINGUISHING RISC OS 3-ONLY PROGRAMS

Richard Hallas

Have you ever written a program that will only work in RISC OS 3, and would like to automatically indicate this fact in its icon in the directory viewer. Well here is a cunning method.

It relies on the little-known fact that under RISC OS 3, *!Sprites* is actually a shorthand for *!Sprites24,* and if *!Sprites24* is present RISC OS 3 will use it in preference to *!Sprites.* This means that if you provide the contents of your normal *!Sprites* file in a file called *!Sprites24,* you can then use a separate *!Sprites* file to provide a copy of your application's icon with a big red cross over it, for example, or perhaps a text message saying RISC OS 3 only. Only RISC OS 2 will load the *!Sprites* file, as RISC OS 3 will have found *!Sprites24* first.

DeskEdit WINDOW CONTROL

Lee Calcraft

Ctrl-Enter takes the current DeskEdit window to the back, and Ctrl-Shift-Enter brings it back to the front (i.e. these keys move the current window from the top to the bottom of the window stack, and vice versa). This facility becomes a touch more powerful on RISC OS 3 if you use Shift-F12 to bring the icon bar to the front. After you have done this just once, the

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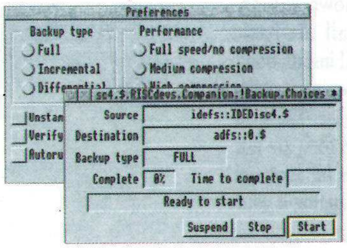

Source idefs::IDEDisc4.$
Destination adfs::0.$
Backup type FULL
Complete 0% Time to complete
Ready to start

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It provides a structured approach to the backing up of hard drives to floppy discs, and the recovery of files after disc failure or accidental file deletion. Both Full and Incremental backups are supported, and the files to be backed-up or ignored are chosen using simple drag operations. The entire backup specification may be saved in a script file for use at a later date. A compression system ensures that the data is backed up quickly and efficiently.

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HOW TO UPGRADE

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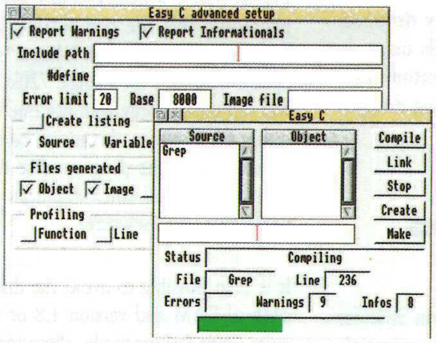

☑ Report Warnings ☑ Report Informationals
Error limit 20 Base 8000
☑ Object ☑ Image
Source: Grep
Status Compiling
File Grep Line 236
Errors Warnings 9 Infos 8

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HEARSAY

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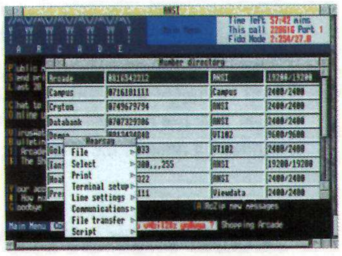

Hearsay is the most powerful general purpose communications package available on Acorn systems.
This superb package is packed with powerful features, yet remains both easy-to-learn and intuitive to use. Now the latest version (2.18) has been further enhanced with an improved user interface and 3D-style throughout.

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- Call logging
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- Supports most popular modems

PRICE £75 + £2.70 carriage

HOW TO UPGRADE

Hearsay II users may upgrade to the latest version free-of-charge by returning original program disc with an SAE.
Hearsay I users should return disc with payment of £35 + £2.70 carriage.

RISC developments

RISC Developments Limited
117 Hatfield Road, St. Albans, Herts AL1 4JS Tel. (0727) 843600 Fax. (0727) 860263

Please add VAT to all prices. Please phone for site licence & educational prices.

The fastest, most accurate and easiest to use OCR package for Acorn systems!

SLEUTH — 1.5 Only £59

What is SLEUTH?

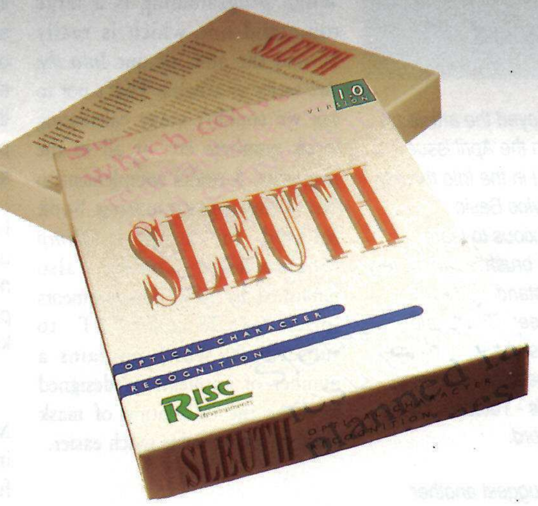
Sleuth is an Optical Character Recognition (OCR) package which converts a scanned image of printed material (Sprite) into an ASCII file which may be further processed using a text editor or word processor. Sleuth is ideal for converting magazine articles, newspaper cuttings, legal documents, program listings, resource materials etc.

The best performance on Acorn systems

Sleuth can consistently achieve over 98% accuracy on good quality 300 dpi scanned images. Unlike other systems, Sleuth recognises a wide range of typefaces without the need for additional training. It has been trained on most popular fonts including the standard Postscript set, and recognises most other similar non-stylised fonts. The latest version now recognises bold typefaces too! Sleuth can handle typesizes between 9 and 24pt and can convert at up to 250 words per minute. Sleuth can handle slightly skewed images automatically, without extra ttraining.

Future development

Sleuth 1.5 is second release in a planned family of products that will take OCR on Acorn systems to full professional level. Future OCR products will be available as upgrades at reasonable cost.



NEW VERSION — 1.5

- Improved accuracy
- Recognises Bold type
- Recognises more fonts
- Twain scanner support

Fully multitasking operation

The scanned image in the input window is converted to ASCII and displayed in the output window from where it is saved. A 'reject' character is used for any unrecognised characters. Sleuth is fully multitasking allowing you to correct mistakes in the converted text while it is still converting the remainder. As you edit text, Sleuth will 'zoom in' on the appropriate part of the original image so that you can easily identify mistakes. Sleuth cannot convert columns of text automatically, but allows a zone to be created around each column for conversion separately.

Equipment required

You will require a scanner that outputs high quality monochrome sprites. All scanners currently available for Acorn systems are suitable, but for best results your scanner should have a resolution of 300 dpi or greater. Sleuth now supports Twain which allows images to scanned directly. Drivers are available separately for a number of popular scanners. Please phone for details.

Latest upgrade

To upgrade from earlier versions of Sleuth, please return your original disc with payment of £5 + £0.85 carriage +VAT.

Flatbed Mono & Colour Scanner Packages from only £479!

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- **Sleuth version 1.5.**
- **ImageMaster image processing software.**
- **Twain scanner driver for Canon scanners.**
- **Optional SCSI interface and connecting lead.**

A3000/A3010/A3020/A4000	
Mono Package with SCSI interface	**£569**
Colour Package with SCSI interface	**£754**
A310/A400/A5000	
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Packages include a SCSI interface card which is required to connect the scanner. If you already have a SCSI card deduct £90 from the above prices. Deduct £39 if Sleuth not required.
All prices exclude carriage and VAT.

Please write or phone for further information.

RISC Developments Ltd
117 Hatfield Road, St. Albans, Herts AL1 4JS Tel. (0727) 843600 Fax. (0727) 860263

Please add carriage and VAT to all prices. Carriage is £1.70 for Sleuth or £8 (courier) for scanner packages. Please phone for site licence & educational prices.

WRITE - BACK

COLOUR SENSE

I very much enjoyed the article on Colour Sense *in the April issue (RISC User 7:5) in the Into the Arc series. As a novice Basic programmer anxious to learn, I found the 'paint brush' analogy very useful in understanding the difference between GCOL and COLOUR. Please, please, please continue with these programmer oriented tutorials -* Tutorials *being the operative word.*

I would like to suggest another topic for explanation: Bit Shifting and Mask Numbers. *I, and I suspect many others, have a simple understanding of these concepts. The paragraph 'Bits, Bytes and Binary Numbers' in* First Steps in programming RISC OS Computers *by Martyn Fox (published by Sigma Press at £14.95) was extremely useful. I cannot recall seeing this sort of information in any of the five Archimedes magazines that I have read for the four years I have had an Arc, and yet it all needs to be understood.*

I am currently reading Wimp Programming for All *by Lee Calcraft and Alan Wrigley (published by RISC Developments at £12.95) in an effort to learn how to write multi-tasking programs. I can understand the principles of calls etc., but I am firmly stuck on how to calculate mask numbers for AND/OR operations, in conjunction with bit shifting. I can see parts of it, but the more involved operations are beyond me still.*

Andrew Campbell

Wimp programming is a large topic and one which is really beyond the aims of our *Into the Arc* series of articles. That's not to say we couldn't cover calculating mask numbers etc. at all in the magazine. A useful complement to the Wimp programming book referred to is the *Wimp Programmer's Toolkit* also published by RISC Developments (price £15.28 ex. VAT to subscribers) which contains a number of applications designed to make the calculation of mask numbers and similar much easier.

INTERPRETING HIEROGLYPHICS

First may I say how much I enjoy reading your magazine, even if I do not understand some of the more technical articles. I use my new A5000 with 33MHz ARM processor as a tool, but I would like to understand it more, which is where your instructional articles are invaluable.

I read through your Into the Arc article "Colour Sense" and not only found it interesting, but also tried out the demonstration programs which worked first time!

However, I write about something completely divorced from colour. After all, you do invite queries at the end of your article. Perhaps it would be as well if I offered an example which would serve much better than my trying to explain my query.

Take Impression, which I use and to which I expect you have access. If I Shift-double-click on !Impress, then again on the Auto directory, and again on !Default, then on !DocData, I see what seems to be a page of what appears as hieroglyphics.

Perhaps you would care to explain in a future article how this is done, as it completely baffles me. Some of the characters do not seem to be even on my keyboard, and if that is the case, how can anyone write a program? Perhaps there is even a special keyboard?

I am sure that I am not alone in my understanding, and whilst I am never likely to want to write a program, I am interested in knowing how it is done.

Charles Harvey

Many applications, Impression included, store relevant data in a file. The data is not in the usual text format, but often consists of values either in the range 0 to 31, or 128 to 255. The former have no character equivalent, and usually appear as hexadecimal values enclosed by square brackets. The latter, known as top-bit-set characters, are not directly available from the keyboard, but can be viewed and accessed using the application *Chars* found in the Apps directory on the icon bar. We will also cover this subject in more detail in a future article in the series *Into the Arc.*

RIVAL TO SEGA PODULE

I was very interested to read in RISC User 7:5 (April 1994) that a subsidiary of Sega is developing a podule to run Sega cartridges. This kind of software emulation is not impossible using the awesome power of the Acorn range.

For the last six months I have been developing a Neo Geo *emulator for* *the Arc. I started by ripping a machine apart and seeing how it worked. Once I was quite sure about the signals to and from the media system, I gave my daughter a set of plans for a podule which she built during her school CDT lessons on veroboard.*

Although even the Arc didn't have the power to run the emulator on the Desktop, in a single tasking overscan mode the effect is quite impressive. There are still a few bugs and features to be fixed, like a Desktop front end, and also the screen display is upside down, which can be a little annoying.

*One thing I was quite intrigued to find out was that the backing music used in most games could be exported to Tracker or Digital Symphony files without too much trouble. Screen grabs to sprites are also simple to achieve. I have tested the software on various machines. An ARM250 keeps up to about * - * speed; but using an ARM2 machine you'd be lucky to beat the first opponent on Streetfighter II Turbo before the human race becomes extinct, although the software should work on ARM650-7 machines at around double speed.*

I am glad to see developers are turning to this rather desperate but necessary form of games conversion. I am still looking for a backer for my project, though a few companies have already shown interest, especially a certain successful company manager I can only name as 'Charlie M.'

Richard Cranium
D.H.Developments

We await further developments in this interesting area, but the latest news is that progress has been delayed, and a finished product is unlikely to appear before 1st April 1995.

PIN BOARD

ARM CLUB WALES

Meetings of the Arm Club Wales have been taking place at the Roath Park Community Hall, Cardiff on Wednesday nights (fortnightly) since 6th April 1994. These meetings are open to non-members of the Arm Club, which hopes to provide various tutorials and help in all Acorn related topics. Various incentives will be offered to people to bring along their computers. For further information contact Derek Rowlands at 9 Harlech Court, Hendredenny, Caerphilly CF8 2TR.

PC CHALLENGE

We are planning to change the format of our PC Emulator pages (*The PC Emulator Survival Guide*) into a forum of hints and tips, questions and answers. If you use the PC Emulator, or a PC card on an Arc (or indeed, are thinking of doing so), then let us have any useful snippets of information, or any queries to which you would like an answer or advice. Please address your replies to Gordon Gilmore c/o RISC User at our normal address.

CONTRIBUTIONS SOUGHT

We will be running an occasional business series in RISC User, and we are also planning to include applications with an educational slant on the magazine disc. Suggestions, or contributions, for both of these developments are welcome - please contact the editors.

WHAT'S COOKING?

I look forward to receiving RISC User each issue, and I think you have the right mix for both basic Archimedes users and for more advanced users.

I was interested to read the views of Mark Colton in the March issue of RISC User (7:4), but was he really suggesting that the Archimedes should become another IBM PC where we all pay a licence fee to Microsoft?

I would like to see a simple word processor with no fancy frills, and which would print in text mode using a printer's own in-built fonts - quick and easy. I use my computer for simple straightforward letters about 90% of the time, and all I want is a computer version of a typewriter. I have been trying to persuade Computer Concepts to issue a full Archimedes version of InterWord, one which does not need the emulator. It merely needs to work with the Wimp at the front end, and have a button or icon bar for the few simple features it provides. It could even do away with the Wimp and use its own main menu display.

I am sure there would be a demand for such a word processor - there must be many like me who only want to type text. So come on software houses, what about it?

R.B.Camp

This is an issue which has been raised before. Is there a demand for a simple, text-only word processor, and indeed is there software which already fulfils this need?

Resultz is the power-packed spreadsheet that gets the answer first. Whether you're working with statistics, finance or arithmetic, Resultz and its unequalled range of functions can provide the answer easily and quickly. Boost your productivity for £99.

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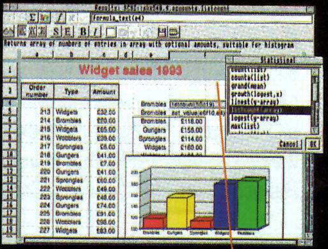

Returns array of numbers of entries in array with optional amounts, suitable for histogram

Widget sales 1993

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213	Widgets	£32.00
214	Brombles	£20.00
215	Widgets	£65.00
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222	Wobblers	£49.00
223	Sprongles	£48.00
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225	Brombles	£91.00
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227	Widgets	£83.00

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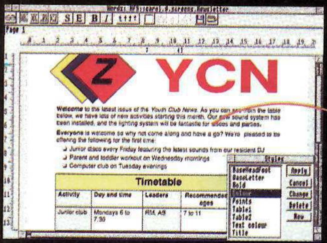


YCN

Welcome to the latest issue of the *Youth Club News*. As you can see from the table below, we have lots of new activities starting this month. Our new sound system has been installed, and the lighting system will be fantastic for discos and parties.

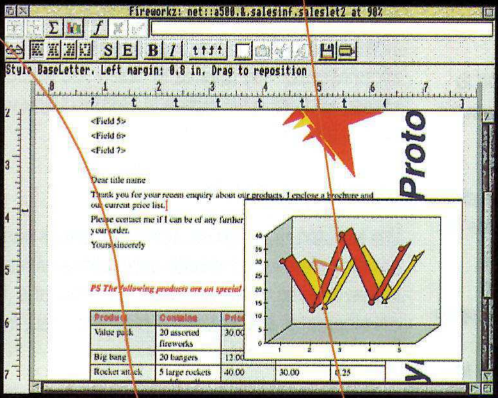
Everyone is welcome so why not come along and have a go? We're pleased to be offering the following for the first time:

- Junior disco every Friday featuring the latest sounds from our resident DJ
- Parent and toddler workout on Wednesday mornings
- Computer club on Tuesday evenings

Timetable

Activity	Day and time	Leaders	Recommended ages
Junior club	Mondays 6 to 7.30	RM, AS	7 to 11

Wordz is the dedicated word processor, feature-packed but easy to use. Click on a button or drag an icon to design good-looking documents. Text and tables are easily styled, live on the page. At £79 it's the affordable option for documents with impact.



Style BaseLetter. Left margin: 0.8 in. Drag to reposition

<Field 5>
<Field 6>
<Field 7>

Dear title name

Thank you for your recent enquiry about our products. I enclose a brochure and our current price list.

Please contact me if I can be of any further

your order.

Yours sincerely

PS The following products are on special

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Value pack	20 assorted fireworks	30.00		
Big bang	20 bangers	12.00		
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The RISC User Address Book

by M.J.Fowler

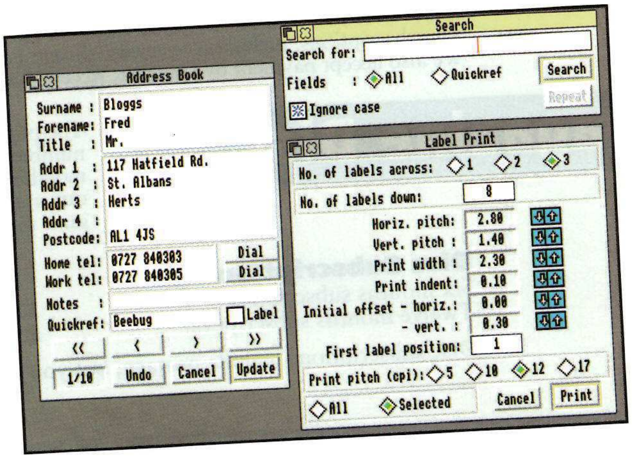
Address is a RISC OS Desktop address book with a difference: it will dial phone numbers for you.

This is an extremely comprehensive Desktop address book, allowing easy access to each entry. Extensive searching and printing facilities are provided, including the option to print out address labels.

If this were not enough, it can also be used to auto-dial any telephone number stored in its pages (providing that your telephone exchange can cope with tone dialling). Just place your telepone handset near to the computer's loudspeaker, clck on *Dial*, and you are away!

Get going with the RISC User Address Book - the ultimate way to keep in touch.

For reasons of space, this application appears only on this month's magazine disc.



Address Book
Surname : Bloggs
Forename: Fred
Title : Mr.
Addr 1 : 117 Hatfield Rd.
Addr 2 : St. Albans
Addr 3 : Herts
Addr 4 :
Postcode: AL1 4JS
Home tel: 0727 840303
Work tel: 0727 840305
Notes :
Quickref: Beebug
☐ Label
1/10

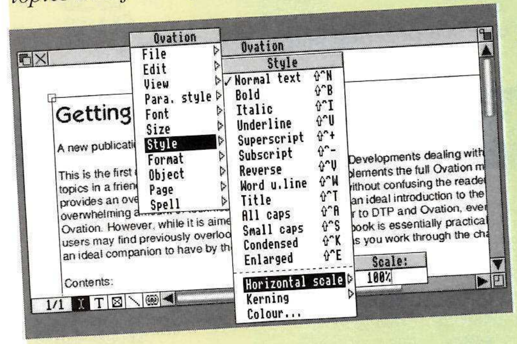
Search
Search for:
Fields : ◆ All ◇ Quickref
☒ Ignore case

Label Print
No. of labels across: ◇1 ◇2 ◆3
No. of labels down: 8
Horiz. pitch: 2.80
Vert. pitch : 1.40
Print width : 2.30
Print indent: 0.10
Initial offset - horiz.: 0.00
- vert. : 0.30
First label position: 1
Print pitch (cpi): ◇5 ◇10 ◆12 ◇17
◇ All ◆ Selected

A new publication from RISC Developments

Getting into Ovation

This is the first of a new series of publications from RISC Developments dealing with specific topics in a friendly tutorial style.



Getting into Ovation complements the full Ovation manual. It provides an overview of all the main features of Ovation without confusing the reader with an overwhelming amount of technical detail. It thus provides an ideal introduction to the use of Ovation. However, while it is aimed more at the newcomer to DTP and Ovation, even experienced users may find previously overlooked hints and tips. The book is essentially practical, and makes an ideal companion to have by the side of your machine as you work through the chapters.

Contents:

INTRODUCTION
The Ovation Package
Equipment needed
Installation
Creating and loading documents

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Importing and exporting text
Entering text
Using special characters
Moving the caret
Changing the view
Selecting and deleting text
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Find and replace
Fonts, sizes and styles
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USING THE TOOLS
Text frames
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Lines
Nested objects
Borders
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PLANNING YOUR DOCUMENT
Using master pages
Ovation chapters
Paragraph styles
Stylesheets

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Reproducing your work
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Getting into Ovation is available now and costs just **£4.95** *(approx. 64pages).*
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Minimum five copies at £3.50 each
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Elsewhere	£44.00	£46.00

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The programs from each issue of RISC User, together with a number of substantial additional items, are included on a monthly 3.5" disc. This is available to order, or you may take out a subscription to ensure that the disc arrives at the same time as the magazine.

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- High Density 3.5 discs, 1000's for sale, will split at £30 per 50 with labels, all unopened, includes postage etc. Bought surplus to requirements. M Vacher, 38 Bernard Road, Wrexham LL13 8EL.

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- Z88 128k RAM with Arc Link and parallel printer interface £125. Tel. West London 081-567 4284.

- A410/1 4Mb RAM, Risc OS 3.1, ARM 3, VIDC Enhancer, 40Mb HD, Eizo Multisync monitor, manuals including full PRM RISC OS 2 £780 o.n.o. Tel. Liverpool 051-526 8931.

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- 20Mb HD for A3010 with 11Mb full of eight W.P and Databases 32 fonts, Thesaurus and Dictionary, printer drivers and loads more besides - no reasonable offer refused (will deliver). Tel. 0904 470890.

- Acorn DTP £35, Microsoft MS-DOS 5 £30 (for use with PC Emulator) Minerva: Gammaplot £15, System Delta Plus ££25, Serial Port: Investigator £10, Games: Boogie Buggie, Superior Golf, Zarch £6 each, Startrader, Word Up Word Down £3 each or all five games for £20, Books: ARM Assembly Language Programming £8, MS-DOS quick reference £5, Risc OS 2 PRM £35. Tel. 0737 832159 eves.

- A410 2Mb, 20Mb HD, Learning Curve and other software, mags, games £400 o.n.o. G16 colour card few months old £200 or computer and colour card £550 o.n.o. Tel. London 081-503 6548.

- Taxan printer KP815 £45, bound sets of magazines £38 (or may split). Tel. Northwood 0923 824063.

- A5000 Learning Curve, 4Mb RAM, 40Mb HD, multisync monitor, manuals etc. loads of software £1,099. Also CC scanlight video scanner software and manuals (as new) £170. Tel. London 081-504 0802 eves.

- Archimedes software, Viewstore Datastore £15, Interword word processor £12, Spellmaster ROM £15, CC ROM podule £12. Tel. East Sussex 0424 844500.

- Acorn Desktop 'C' (rel 4) mint condition, offers around £95. Tel. Scarborough 0723 363917 anytime.

- A5000, 4Mb RAM, 120Mb IDE hard disc, Acorn multisync monitor, Risc OS 3.1, 1yr old, in excellent condition £1200 p&p, all sensible offers considered. Tel. Devon 0823 680111.

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- A5000, 33Mhz, 4Mb RAM, 250Mb HD, Learning Curve software, 2 joysticks & interface, AKF50 monitor, games software, only 6 months old £1,250 o.n.o. Tel. 0792 404331.

- WANTED: W.E. Real Time home video digitiser. Tel. London 081-398 7254.

- PRM Risc OS 2 Programmers Reference manual £25 inc. p&p. Tel. 081-445 7875.

- A5000, 4Mb, 2xHD 120Mb, multiscan monitor £850, CC Colour Card Gold £150, Aleph 486/4Mb PC card £300, Scanlight A4+ sheetfeeder £100 all for £1,300. Tel. 031-650 4132.

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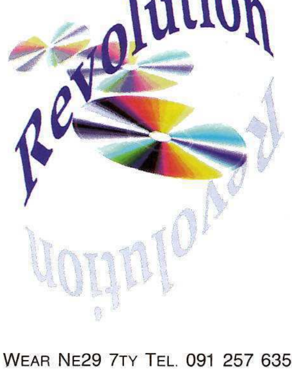

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NoiseBox

by Alan Bonsor and Nathan Micholey

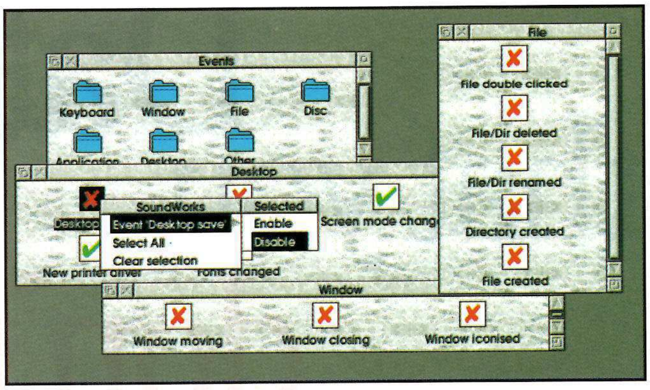
This month, we present NoiseBox: an excellent way to liven up your Desktop.

With NoiseBox you can assign sounds to over thirty different Desktop actions, such as closing or iconising a window, saving the Desktop !Boot file, or starting an application.

Double-clicking on the NoiseBox icon opens a window that contains several 'directories' each containing a set of functionally grouped events. Double-clicking on an event will open a dialogue box into which you can drag a sound sample. From this box, the sample can be switched on or off, and its pitch adjusted as required.

Once you have assigned the sounds, and saved your choices, you can get on and use your Desktop as normal, but with with your own personalised audio feedback.

For reasons of space, this application appears only on this month's magazine disc.



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- **Printing - full printing capabilities via RISC OS printer drivers**

The normal recommended retail price of Eureka 2 is £122 ex. VAT.
For a limited period we are able to offer Eureka 2 for just £75 ex. VAT, that's a saving of £47 (over £55 if you include VAT).

This offer is valid only until 30th June 1994 and is limited to one purchase per subscriber. You must also quote your RISC User membership number to qualify. Post & packing is extra at the 'c' rate, that's £2.70 ex. VAT in the UK (total UK cost £91.30).
When ordering please refer to RISC User Eureka Offer to ensure your order is processed at this special price.

RISC Developments Ltd, 117 Hatfield Road, St Albans, Herts AL1 4JS.
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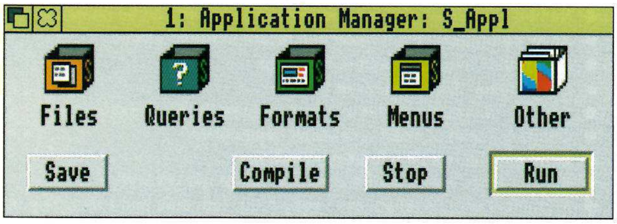

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